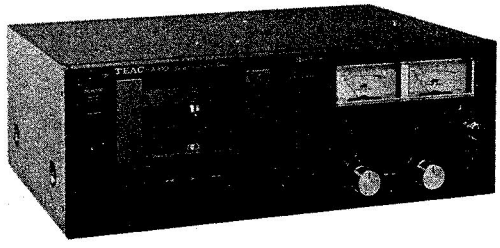
TEAC®



SERVICE MANUAL

A-430

Stereo Cassette Deck

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1 SPECIFICATIONS & SERVICE DATA

SPECIFICATIONS

Track System 1/4-track, 2-channel stereo
Heads Three: Erase, Record and Playback
Type of Tape Cassette tape, C-60 and C-90 (Philips type)
Tape Speed 4.8 cm/s (1-7/8 ips)
Inputs (level and impedance)

MIC:	Specified input level: –57 dB (1.09 mV)/ 10 kohms
	Min. input level: –67 dB (346 μV)
LINE IN:	Specified input level: –9 dB (275 mV)/ 50 kohms
	Min. input level: –19 dB (86.9 mV)
DIN IN*:	Min. input level: –35 dB (13.8 mV)

Outputs (level and impedance)

OUTPUT:	Specified output level: –5 dB (436 mV)/ 50 kohms
Headphones:	Specified output level: –21 dB (69 mV)/ 8 ohms

Equalization
METAL and Co (CrO_2): 3,180 μs + 70 μs
NORMAL: 3,180 μs + 120 μs
Head Configuration 1/2-track, 1-channel Erase Head
1/4-track, 2-channel Dual-gap Record and Playback Heads
Motor DC servo motor (FG type)
Bias Frequency 100 kHz
Built-in Frequency 10 kHz (for Auto Bias fucntion)
Operating Position Horizontal
Power Requirements
100/117/220/240 V, AC 50/60 Hz, 15 W (General Export Model)
220 V AC 50 Hz, 15 W (Europe Model)
240 V AC 50 Hz, 15 W (U.K./Australia Model)
117 V AC 60 Hz, 16 W (U.S.A./Canada Model)
Weight 8.3 kg (18.3 lbs) net
8.0 kg (17.6 lbs) net (Some General Exp. Models have wood side panels.)

*** Pursuant to DIN Standards**

NOTE:
- Improvements may result in Specifications and Service Data changes.
- dB values in the Specifications and Service Data are based on 0 dB = 0.775 V.

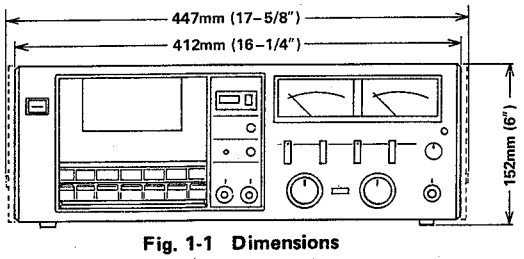


Fig. 1-1 Dimensions

SERVICE DATA

MECHANICAL

Tape Speed Deviation 3,000 Hz ±45 Hz
Tape Speed Drift 45 Hz
Wow and Flutter
Playback: 0.10% (WRMS)
Record/Playback: 0.25% (RMS)
Pinch Roller Pressure 400 g ±50 g (12.3 to 15.9 oz)
Reel Torque
Take Up: 45 to 65 g·cm (0.6 to 0.9 oz·inch)
Supply: 3 to 8 g·cm (0.04 to 0.11 oz·inch)
Fast Forward: 80 to 150 g·cm (1.1 to 2.1 oz·inch)
Rewind: 100 to 150 g·cm (1.4 to 2.1 oz·inch)
Fast Winding Time 90 seconds for C-60

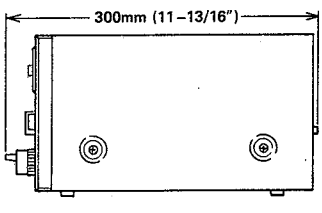
ELECTRICAL

Frequency Response

Playback: Ref. 315 Hz		Overall: Ref. 400 Hz	
40 Hz:	+2, –4 dB	40 Hz:	+4, –4 dB
63 Hz:	+2, –4 dB	63 Hz:	+4, –4 dB
125 Hz:	+2, –2 dB	125 Hz:	+4, –2 dB
2 kHz:	+2, –2 dB	250 Hz:	+2, –2 dB
4 kHz:	+4, –2 dB	6.3 kHz:	+2, –2 dB
6.3 kHz:	+4, –2 dB	8 kHz:	+3, –2.5 dB
10 kHz:	+4, –5 dB	10 kHz:	+3, –3 dB (NORMAL)
		12.5 kHz:	+3, –3 dB (Co (CrO_2) and METAL)

Signal to Noise Ratio
Playback method: 47 dB min.
Record/Playback method:
METAL and Co (CrO_2) 45 dB min.
NORMAL 44 dB min.
With Dolby Noise Reduction used for recording and playback, S/N ratio is improved by up to 5 dB at 1 kHz and up to 10 dB at frequencies over 5 kHz.
Erase Efficiency 65 dB min.
Channel Separation 30 dB min. (at 1 kHz)
Crosstalk between Adjacent Tracks 40 dB min. (at 125 Hz)
Total Harmonic Distortion

Co (CrO_2):	2.2% (max.)
NORMAL:	2.5% (max.)
METAL:	2.0% (max.)



* Dolby noise reduction: Noise reduction circuit made under license from Dolby Laboratories. The word "Dolby" and the Double-D symbol are trademarks of Dolby Laboratories.

2 PARTS LOCATION

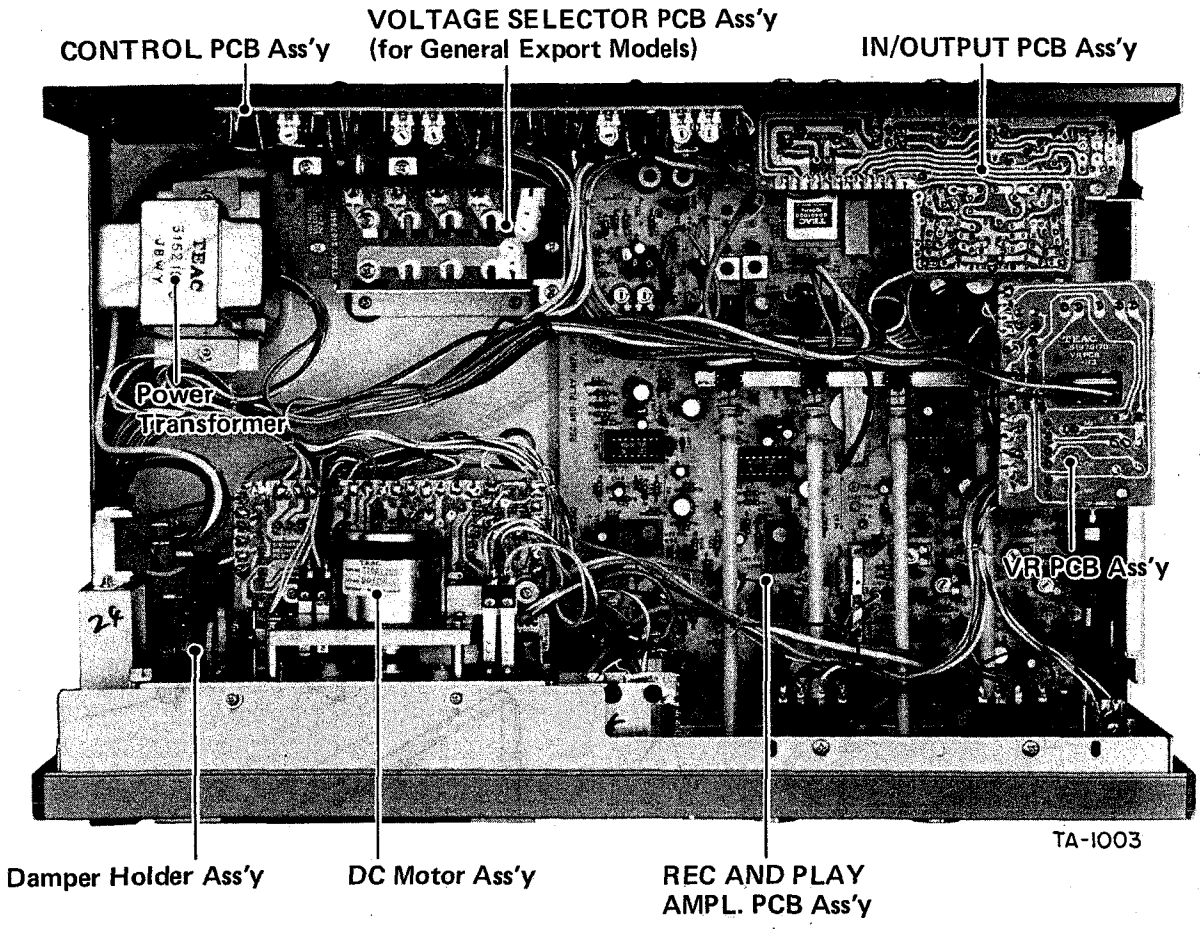


Fig. 2-1

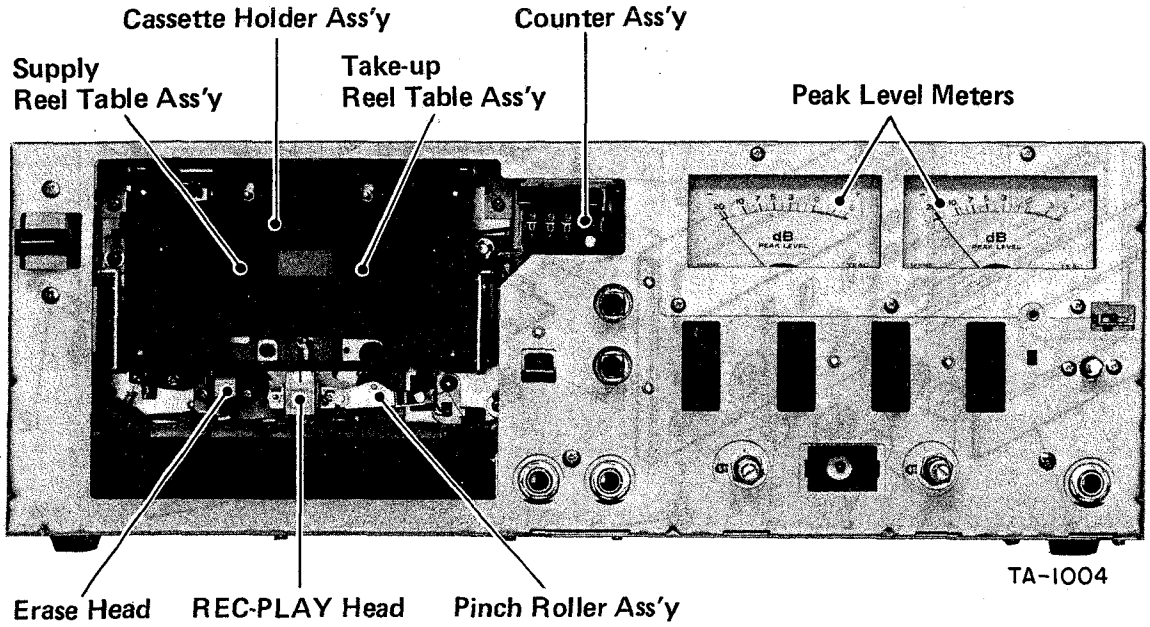


Fig. 2-2

3 CASE AND FRONT PANEL REMOVAL

Disassemble in number-order

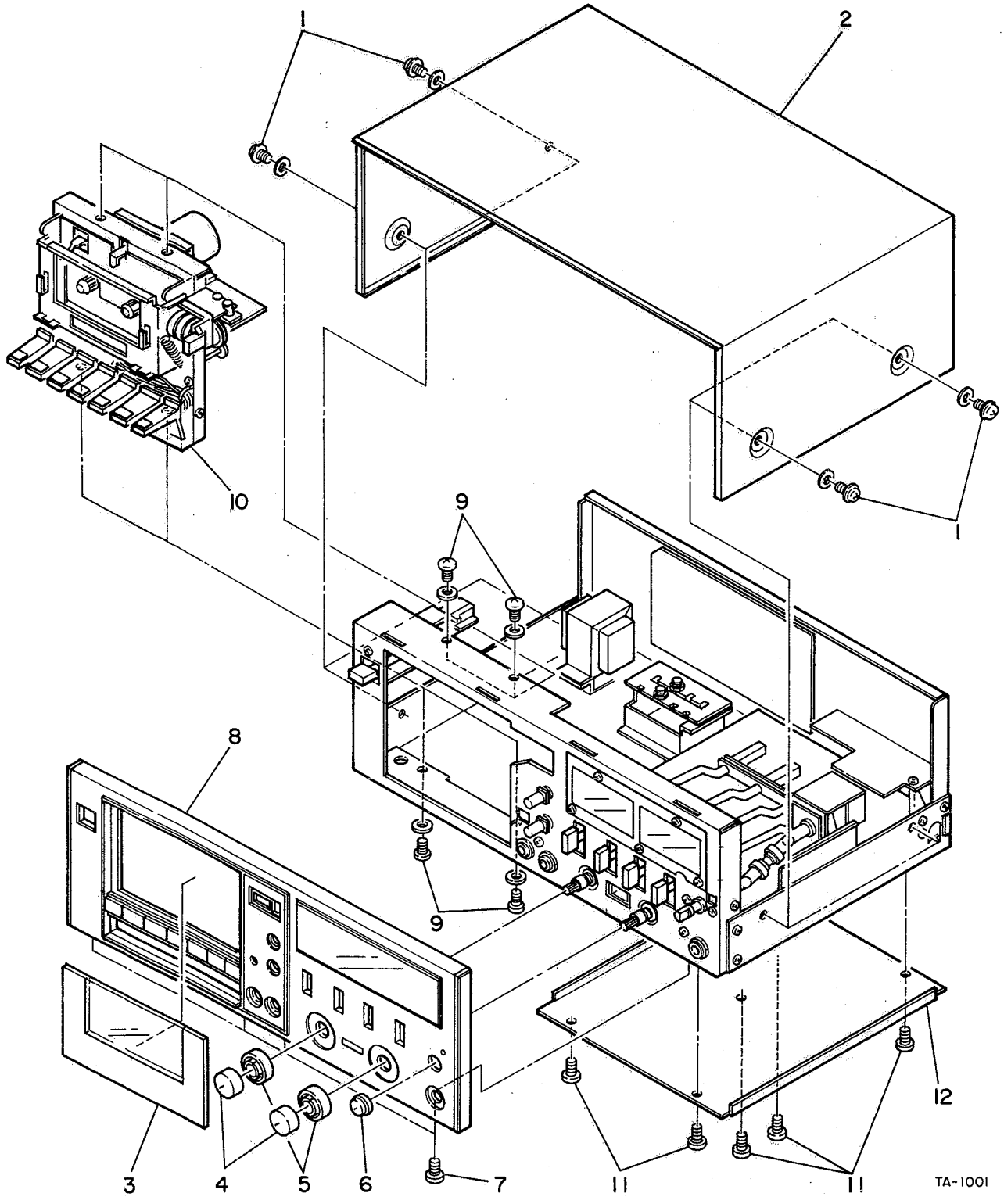


Fig. 3-1

4 MECHANICAL ADJUSTMENTS AND CHECKS

4-1 TEST EQUIPMENT

NOTE: When ordering special tapes indicated by*, allow for the longer delivery time that is required for them.

1. Spring scale: For pinch roller pressure check, 0 to 500 g (17.6 oz)
2. Wow/flutter meter:
3. Frequency counter: Digital type, capable of 10 Hz to 100 kHz indication
4. Cleaner: TEAC TZ-261 tape recorder cleaner kit or pure alcohol
5. Test tape*: TEAC MTT-111 (for tape speed and wow/flutter test, 3,000 Hz is recorded)
6. Cassette torque meter*: For take-up and supply torque checks, 0 to 100g.cm (0 to 1.4 oz. inch)
   For fast forward and rewind torque checks, 0 to 160g.cm (0 to 2.2 oz.inch)
7. Compact Cassette Tape Path Checker*: MTT-901; C-60, 30m
   MTT-902; C-90, 45m

4-2 REEL TORQUE

Load the cassette torque meter on the deck and read the pointer indication on the dial scale for each tape movement operation.

Specifications:

Take-up:	45 to 65g.cm (0.6 to 0.9 oz-inch)
Supply:	3 to 8g.cm (0.04 to 0.11 oz-inch)
Fast Forward:	80 to 150g.cm (1.1 to 2.1 oz -inch)
Rewind:	100 to 150g.cm (1.4 to 2.1 oz-inch)

4-3 PINCH ROLLER PRESSURE

1. Place the deck in the PLAY mode with no tape loaded.
2. Attach the spring scale to the pinch roller shaft.
3. Draw the pinch roller away from the capstan shaft in a directly downward direction until the capstan shaft and the pinch roller are separated.
4. Return the scale back until the pinch roller just begins to rotate. The scale should then be reading as per spec.
   Specification: 400 g ±50 g (12.3 oz. to 15.9 oz.)
5. If the reading is out of the specified range, replace the Pinch Roller Ass'y or the Pressure Spring, or adjust the Spring Arm as shown.

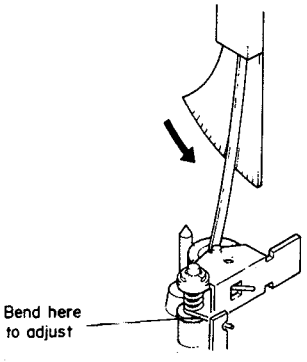


Fig. 4-1

4-4 TAPE SPEED

1. Connect test equipment to the deck.
2. Load and play a TEAC MTT-111 test tape.
3. Using a common slotted screwdriver with a handle completely insulated from the screwdriver blade, adjust the control on the motor for a reading of 3,000 ±10 Hz.

NOTE: This tape speed setting should be done after about 20 seconds of operating time.

4. Check the followings at any portaion of the tape run.
   Specifications:
   Tape speed deviation . . . . . 3,000 Hz ±45 Hz
   Tape speed drift. . . . . 45 Hz
5. If the tape speed is out of spec., check the pinch roller pressure and the tape driving function for correctness, and make sure the tape path is clean.

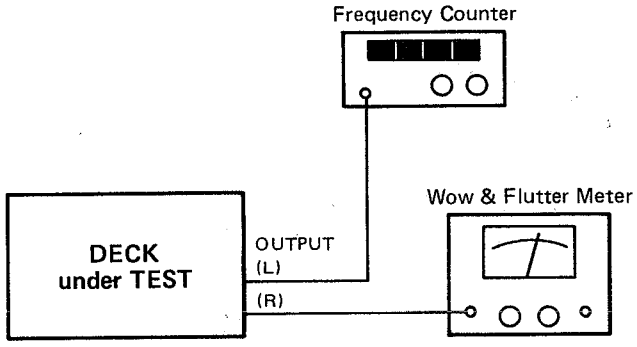
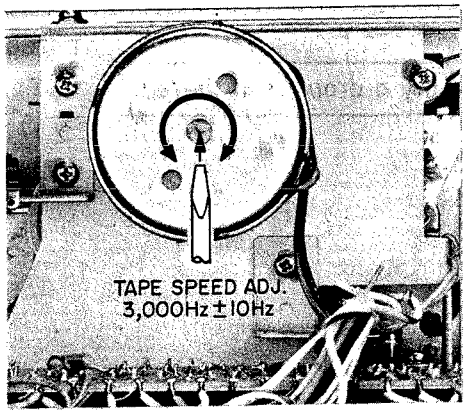


Fig. 4-2 Connection



T-1679

Fig. 4-3 Tape Speed Adjustment Location

5 LUBRICATION AND VOLTAGE CONVERSION

5-1 LUBRICATION

Lubrication is only required when parts are replaced. For this purpose, use oil and grease specified below.

Oil:	TEAC Spindle Oil (from TEAC TZ-255 Oil Kit), Mobil D.T.E. Oil Light, or equivalent
Grease:	ORE-LUBE G 1/3 or equivalent

1. Apply a drop of oil with an oil applicator to a point about 1/3 the way down the shaft (from the free end) of the flywheel, then insert the shaft into the capstan housing.
2. Apply a suitable amount of light grease to the well of the flywheel bearing.

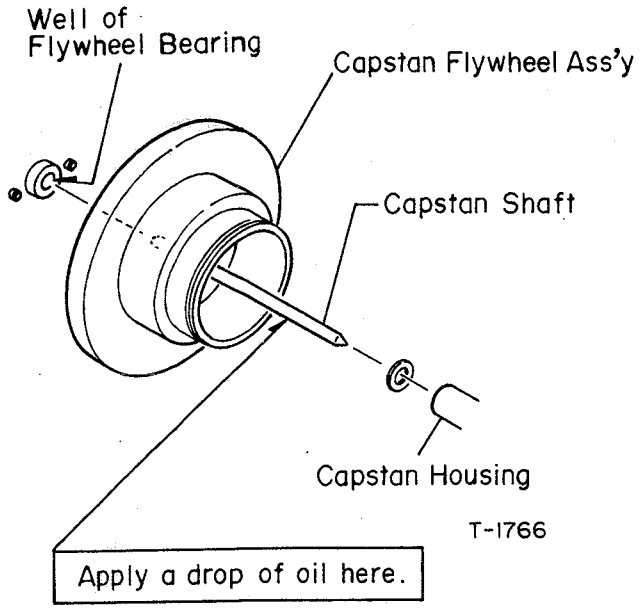


Fig. 5-1

5-2 VOLTAGE SELECTOR SETTING PROCEDURE (FOR GENERAL EXPORT MODELS)

1. Always disconnect the power line cord before making these adjustments.
2. Remove the top cover of the deck by removing the two screws from the sides.

NOTE: Decks sold in some limited areas only have wooden sideboards which must be removed by two screws on each side of the deck before setting the voltage selector.

3. Locate the voltage selector, shown in the illustration, near the power transformer.
4. Loosen the two screws in the shorting bar and move the bar so that it short across the terminals marked with the required voltage (100, 117, 220 or 240).
5 Regighten the screws and replace the top cover.

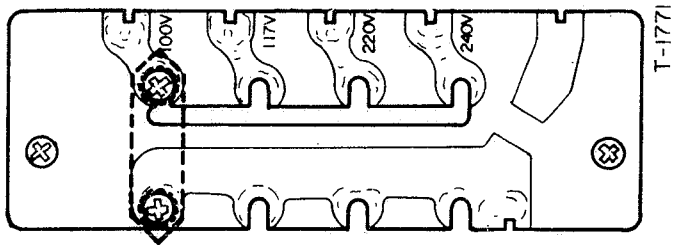


Fig. 5-2

5-3 AC POWER LINE FREQUENCY ADAPTATION

Since the A-430 employs a DC servo motor, 50 Hz or 60 Hz operation is permitted without power line frequency adaptation.

6 ELECTRICAL ADJUSTMENTS AND CHECKS

6-1 GENERAL NOTICE

1. Before performing adjustments and checks, clean and demagnetize the entire tapa path.
2. Make sure the deck is properly set for the voltage in your locality.
3. In general, adjustments and checks are done in the order of L-ch then R-ch. Double REF. Nos. indicate L-ch/R-ch. (Example: R10/R20)
4. The value of "dB" refers to 0 dB (0.775 V). If an AC voltmeter calibrated to 0 dB (1 V) is to be used, appropriate compensation should be made.
5. The AC voltmeter used in the procedures must have an input impedance of 1 M-ohms or more.

6-2 TEST EQUIPMENT

NOTE: When ordering test tapes, allow for the longer delivery time required for them.

1. TEAC test tapes
   MTT-150: For Dolby level calibration
   MTT-316: For playback frequency response check for EQ, METAL, Co (CrO_2).
   MTT-216: For playback frequency response check for EQ, NORMAL
   MTT-506 or similar: For record test with BIAS/EQ, Co (CrO_2).
   MTT-501 or similar: For record test with BIAS/EQ, NORMAL
   METAL tape: For record test with BIAS/EQ, METAL
2. AF oscillator: 10 Hz to 100 kHz
3. AC voltmeter: 0.1 mV to 300 V
4. DC voltmeter
5. Attenuator: General purpose
6. Distortion analyzer: Basic frequency 400 Hz/1 kHz
7. Oscilloscope: General purpose
8. Band-pass filter: 1 kHz narrow band-pass type
9. Test load resistor: Non inductive type 8 ohm/1 W
10. Plastic alignment tool
11. Head demagnetizer: TEAC E-3 or equivalent
12. Cleaner: TEAC TZ-261 or pure alcohol
13. Bulk tape eraser: TEAC E-2 or equivalent

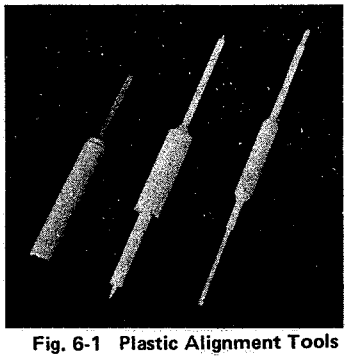


Fig. 6-1 Plastic Alignment Tools

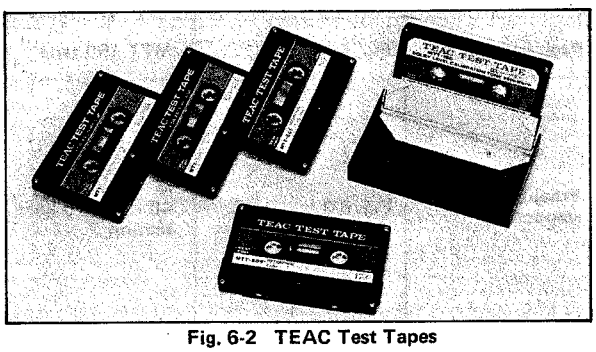


Fig. 6-2 TEAC Test Tapes

6-3 PREPARATIONS

1. Make the basic test set-up and the switch/control setting. Unless showed otherwise in the procedures, 1 kHz filter should be bypassed.

Switch/control	Position
MEMORY	OFF
REC MUTE	OFF
AUTO BIAS	OFF
METAL	OFF
DOLBY NR	OUT
MONTITOR	TAPE
MIC	MIN
LINE	MIN

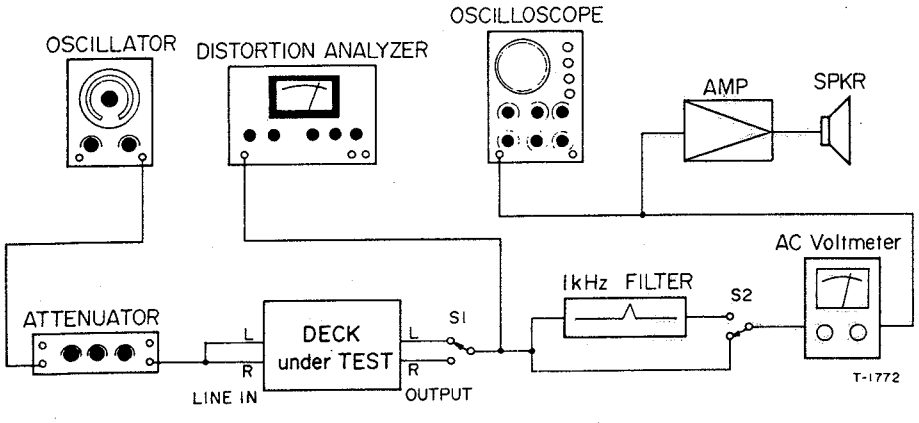


Fig. 6-3 Basic Test Setup

6-4 PLAYBACK PERFORMANCE

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. REC/PLAY head azimuth	Fig. 6-4	MTT-150 tape	Check	Phase: within 45° on oscilloscope (Fig. 6-6)	
		MTT-316 tape, 10 kHz section	Azimuth adj. nut of head (Fig. 6-5)	Max. output on AC voltmeter	
2. Specified output level	Connect AC voltmeter between DOLBY TP L (R) and TP E	MTT-150 tape	R10/R20	580 mV (–2.5 dB)	
	Fig. 6-3	"	Check	–5 dB ±2 dB (346 mV to 548mV)	● Specified level
3. Peak level meter	Fig. 6-3	MTT-150 tape	R70/R80	0 dB on peak level meter	
4. Frequency response	Fig. 6-3	MTT-316 tape, 40 Hz to 10 kHz section	R11/R21	Reference 315 Hz: 40 Hz: +2, –4 dB 63 Hz: +2, –4 dB 125 Hz: +2, –2 dB 2 kHz: +2, –2 dB 4 kHz: +4, –2 dB 6.3 kHz: +4, –2 dB 10 kHz: +4, –5 dB	
5. Signal to noise ratio	Fig. 6-3	MTT-501 tape	Check	47 dB (min.) ratio	● Ratio of spec. –5 dB and noise.
6. Headphone output level	Fig. 6-7	MTT-150 tape	Check	–21 dB ±3 dB (48.9 mV to 97.5 mV)	● At PHONES jack

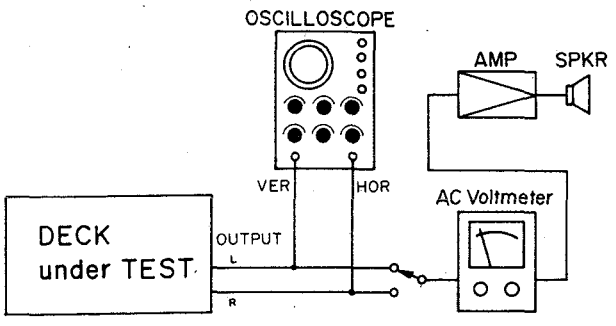


Fig. 6-4 Connection

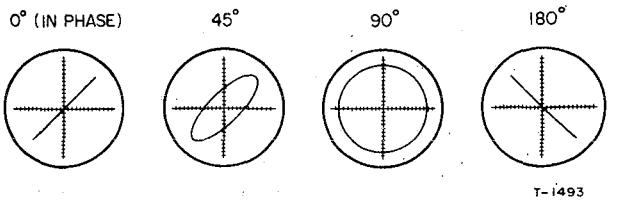


Fig. 6-6 Confirming Phase Relationship

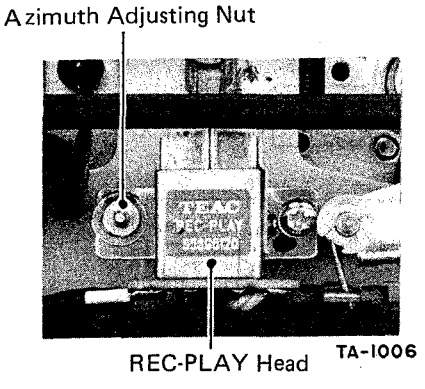


Fig. 6-5 Head Azimuth Adj. Location

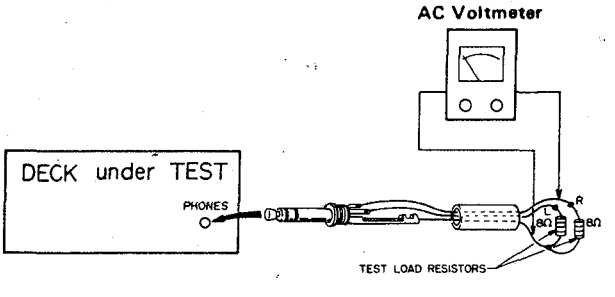


Fig. 6-7 Connection

6-5 MONITOR PERFORMANCE (In the record-pause mode with MONITOR sw. to SOURCE)

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. Min. input level	Fig. 6-3, but LINE IN → MIC	Test tone, 400 Hz/ -67 dB ±3 dB (245 μV to 489 μV)	MIC cont. to Max.	−5 dB (436 mV)	● For MIC check
	Fig. 6-3, but LINE IN → DIN IN	Test tone, 400 Hz/ -35 dB ± 3 dB (9.75 mV to 19.5 mV)	"	"	● For DIN IN check
	Connect OSC → ATT to LINE IN (L) only, and AC voltmeter between DOLBY TP (L) and TP E	Test tone, 400 Hz/ -19 dB ±3 dB (61.5 mV to 123 mV)	LINE cont. to MAX. and check	580 mV (−2.5 dB)	● For LINE IN check
	Connect OSC → ATT to LINE IN (R) only, and AC voltmeter between DOLBY TP (R) and TP E	"	LINE cont. to MAX. and (R61)	"	**NOTE: To prevent mis-measurements, any connection cords except those for each input check must be removed.**
2. Specified LINE cont. setting	Connect OSC → ATT to LINE IN (L) only, and AC voltmeter between DOLBY TP (L) and TP E	Test tone, 400 Hz/ -9 dB (275 mV)	LINE cont.	580 mV (−2.5 dB)	
	Connect OSC → ATT to LINE IN (R) only, and AC voltmeter between DOLBY TP (R) and TP E	"	R61	"	
	Fig. 6-3	"	Check	−5 dB ±1 dB (388 mV to 489 mV)	**IMPORTANT: After this, do not move LINE cont. for all later process.**
3. Peak level meter	Fig. 6-3	Test tone, 400 Hz/ −9 dB (275 mV)	Check	0 dB ±1 dB on peak level meter	

6-6 RECORDING PERFORMANCE

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. Bias trap	Connect AC voltmeter between BIAS TRAP TP L (R) and TP E	No signal recording	L103/L203	Min. reading	● Set in REC-PAUSE mode.
2. Manual bias	See 6-7-1 MANUAL BIAS ADJUSTMENTS on page 11.				
3. Record level	Fig. 6-3	Test tone, 400 Hz/ −12 dB (195 mV)	R16/R26 .... Check	−8 dB (308 mV) .... −8 dB ±1 dB (275 mV to 346mV) {	.... Co (CrO_2) .... NORMAL .... METAL
4. Distortion	Fig. 6-3	Test tone, 400 Hz/ −12 dB (195 mV)	Check	2.2% or less ..... 2.5% or less ..... 2.0% or less	.... Co (CrO_2) .... NORMAL .... METAL

Continued on page 10

Continued from page 9

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
5. Frequency response	Fig. 6-3	Test tone required w/spec./—42 dB (6.15 mV)	L104/L204	Reference 400 Hz: 40 Hz; +4, —4 dB 63 Hz; +4, —4 dB 125 Hz; +4, —2 dB 250 Hz; +2, —2 dB 6.3 kHz; +2, —2 dB 8 kHz; +3, —2,5 dB 10 kHz; +3, —3 dB .... 12.5 kHz; +3, —3 dB ...	 .... NORMAL .... Co (CrO_2) and METAL
6. Signal to noise ratio	Fig. 6-3	Test tone, 1 kHz/ —9 dB (275 mV) then No signal recording	Check	45 dB (min.) ratio ... 44 dB (min.) ratio ...	● Ratio of 1 kHz portion and no signal portion .... Co (CrO_2) and METAL .... NORMAL
7. Erase efficiency	Fig. 6-3, switch on 1 kHz filter	Test tone, 1 kHz/ +1 dB (0.869 V) then No signal recording	Check	65 dB (min.) ratio	● METAL only ● Record 1 kHz. Rewind tape to mid point of recorded portion. Do no signal recording. Get difference between 1 kHz portion and its erased portion.
8. REC MUTE function	Fig. 6-3, switch on 1 kHz filter	Test tone, 1 kHz/ +1 dB (0.869 V) then No signal recording	Check	65 dB (min.) ratio	● Co (CrO_2) only ● Record 1 kHz. Then push REC MUTE button for several sec. Rewind and play tape. Get difference between 1 kHz portion and the created no signal portion.
9. Channel separation	Fig. 6-3, connect OSC → ATT to LINE IN (L) only, switch on 1 kHz filter	Test tone, 1 kHz/ —9 dB (275 mV) for L-ch and No signal for R-ch.	Check	30 dB (min.) ratio	● Co (CrO_2) only ● Set deck in record mode. Find differences between 1 kHz recorded portion (L-ch) and no signal portion (R-ch).
10. Adjacent track crosstalk	Fig. 6-3, connect OSC → ATT to LINE IN (R) only, and AC voltmeter to OUTPUT (R) only.	Test tone, 125 Hz/ —9 dB (275 mV)	Check	40 dB (min.) ratio	● Co (CrO_2) only ● Record 125 Hz on R-ch. Note output level of its recorded portion. Invert tape and play R-ch track. Check leakage level against the output ref. of previously recorded portion.
11. Dolby NR effect	Fig. 6-3	Test tone: 1 kHz/—29 dB (27.5 mV) and 10 kHz/—39 dB (8.69 mV)	Check	Veriation from ref. At 1 kHz: 5.5 dB ±2.5 dB At 10 kHz: 10 dB ± 2 dB	● Co (CrO_2) only ● Record 1 kHz w/DOLBY NR sw. to OUT. Play its portion w/DOLBY NR, OUT and IN. Get the output level difference between OUT and IN. ● Repeat the above process for 10 kHz.
12. Auto bias	See 6-7-2 AUTO BIAS ADJUSTMENTS on page 12.				

6-7 RECORDING BIAS ADJUSTMENTS

6-7-1 MANUAL BIAS ADJUSTMENTS

NOTE: The adjustments in these paragraphs should be done before conducting "6-6 RECORDING PERFORMANCE , 3. Record level" on page 9. When conducting "3. Record level" and after, BIAS knob setting should always be done by hand for each item on the chart.

(1) Cam adjustment

1. The power switch on the deck should be switched off.
2. Select the resistance range of the tester, then connect one test lead to TP 1 and TP 3 (on VR PCB) alternately, with the other test lead connected to TP 2 (on VR PCB) in order to look for the ineffective portion of the 360 degree control (R55), then to find its mid-point. At this time, the adjusting screw on the cam should be loosened beforehand.
3. Fix the screw so that the mid-point of the cam's OFF-section (Switch S510, OFF) alignes with the mid-point of the control as established in step 2.
4. Check that the relationship between the effective and ineffective sections of R55 and ON-OFF of S510 are as in Fig. 6-10. If not re-do steps 2 and 3.

(2) BIAS knob adjustments

1. Loosen the adjusting screw on the coupling ring (either A or B) and retighten it so that the requirement below can be satisfied.
   a. When the resistance between TP 2 and TP 4 on VR PCB is as near 0 ohms as possible, the knob index points to the METAL range mid-point.
   b. When the resistance between TP 2 and TP 5 is as near 0 ohms as possible, the index points to the Co (CrO_2) range mid-point.

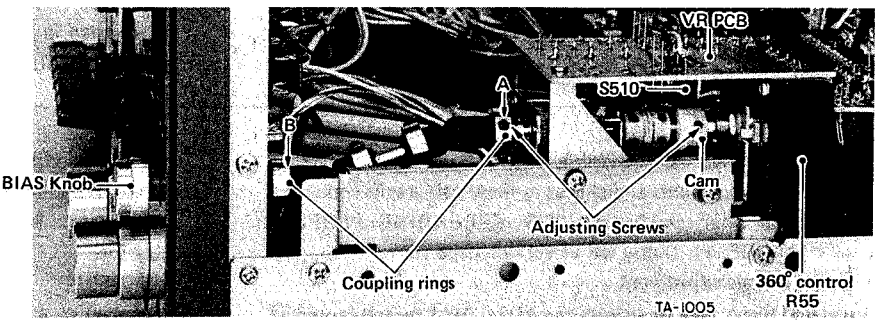


Fig. 6-8 Location of Auto Bias Components

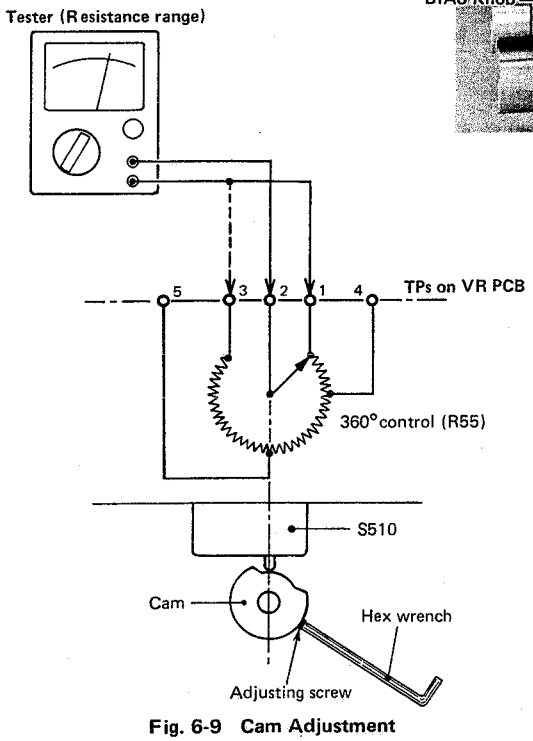


Fig. 6-9 Cam Adjustment

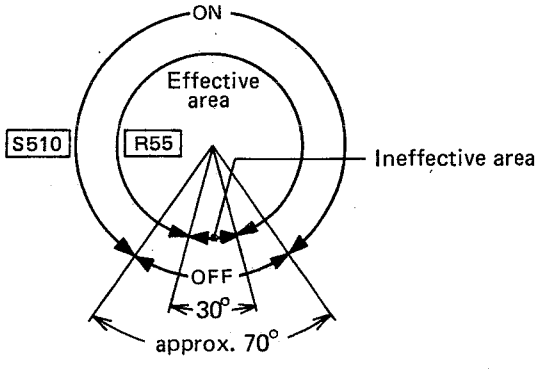


Fig. 6-10 Relationship of R55 to S510

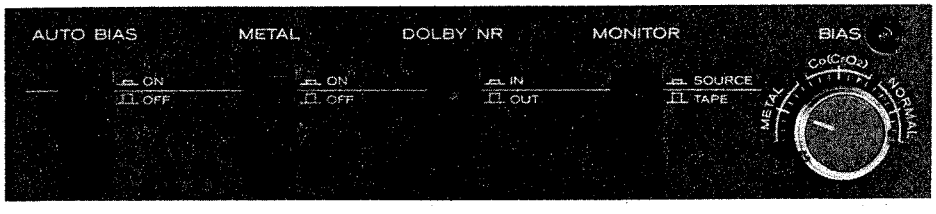


Fig. 6-11

(3) Manual bias adjustment

NOTE: Be sure to make manual bias adjustments in the order of METAL tape → Co (CrO_2) tape → NORMAL tape.

1. Set the deck in the record mode.
2. Connect the DC voltmeter between TP 1 and TP 6 (ground) on the CONTROL PCB, then adjust R64 for +24 V DC. (Adjustment for power supply voltage of the 100 kHz oscillator)
3. Connect the deck and test equipment as shown in Fig. 6-3.
4. Set R50 fully clockwise (CW); R51 and R52 at mid-point; R53 and R54 fully counterclockwise (CCW).

For METAL tape

5. Load the METAL test tape, set the METAL switch to ON.
6. Apply and record 1 kHz/-39 dB (8.69 mV).
7. During recording operation, turn the knob with the index line in the vicinity of the METAL range mid-point and locate the position producing the maximum output from the deck's OUTPUT terminal.
8. Note this output level as a reference level, then point the knob index to the METAL range mid-point.
9. Turn R53 (for R-ch) then R54 (for L-ch) clockwise until the output level decreases by 1.5 dB from the reference level.
   NOTE: If finding the 1.5 dB over-bias position is impossible even though R53 and/or R54 are turned fully clockwise, turn R50 slightly CCW then readjust R53 and/or R54. R50 should be moved as little as possible to prevent channel separation deterioration.

For Co (CrO_2) and NORMAL tapes

10. With the following setting, record 1 kHz/-39 dB (8.69 mV) to get 0.5 dB over-bias, adjusting R51 and R52 in a similar way as "For METAL tape".

Test tape	METAL switch	BIAS knob	Adjustment
MTT-506	OFF	Co (CrO_2) mid-point	R51
MTT-501	OFF	NORMAL mid-point	R52

11. Load any of the three test tapes above and check that the L- and R-ch output levels indicate the same level chnges when R55 is adjusted in both the CW and CCW directions. If not,re-adjust R53 and/or R54.

6-7-2 AUTO BIAS ADJUSTMENTS

NOTE: The adjustments and checks in these paragraphs should be done after conducting "6-6 RECORDING PERFORMANCE, 11. Dolby NR effect" on page 10.

(1) Motor voltage adjustment

1. Load any blank tape, then with the AUTO BIAS switch depressed during the record operation (this mode is hereafter refered to as the auto bias mode), adjust R63 so that the BIAS knob makes one rotation per 3 seconds.
2. To make the above adjustment easirer, the following is recommended.
3. Connect DC voltmeter between TP 2 and TP 6 (ground) on the CONTROL PCB.
4. During auto bias mode, adjust R63 for a DC voltmeter indication of about +5 V, then fine-adjust the motor speed using R63 too.

(2) Built-in 10 kHz oscillating frequency adjustment

1. Connect a frequency counter between TP 3 and TP 6 (ground) on the CONTROL PCB.
2. In the auto bias mode, adjust R62 so that the counter reads 10 kHz.

(3) 10 kHz output level adjustment

1. Connect a AC voltmeter to the R-ch OUTPUT.
2. Set the MONITOR switch to SOURCE.
3. In the auto bias mode, adjust R65 so that 10 kHz (from the built-in oscillator) output level of R-ch is −35 dB (13.8 mV).

(4) Detecting level adjustment

1. Set the METAL switch to OFF and the MONITOR switch to TAPE, then load the MTT-506 test tape.
2. In the auto bias mode, adjust R60 so that the BIAS knob stops at the Co (CrO_2) range mid-point.
3. In the condition below, check the stop position of the BIAS knob using the same procedure as above.

Test tape	METAL switch	BIAS knob's stop position
METAL	ON	METAL mid-point
MTT-501	OFF	NORMAL mid-point

4. Connect an AC voltmeter to the R-ch OUTPUT.
5. Check that when the BIAS knob stops in the auto bias mode, the 10 kHz output level is the same with the MONITOR switched between SOURCE and TAPE.

(5) BIAS knob's two rotation check

1. Connect an AC voltmeter to the R-ch OUTPUT.
2. Load an MTT-506 test tape.
3. While recording, push the AUTO BIAS and REC MUTE switches together to let the BIAS knob turn beyond the NORMAL range.
4. Continuously let the knob turn, and just before the knob enters the Co (CrO_2) area, release the REC MUTE switch.
5. After the knob index has entered the Co (CrO_2) range, check that it stops within first half of the range.
6. After the knob has stopped, check that, when changing the MONITOR switch from SOURCE to TAPE, the 10 kHz output level of R-ch is reduced by 3 dB.

(6) Malfunction prevention check

1. Connect the deck and test equipment as shown in Fig. 6-3 . but do not use both LINE and OUTPUT of L-ch.
2. Load a METAL test tape then set the METAL switch to ON.
3. After getting the optimum bias using the auto bias mode, apply and record 1 kHz/+1 dB (0.869 V) to the R-ch LINE IN for about ten seconds.
4. Rewind the tape to the begining of the recording.
5. Check that, during auto bias mode, the knob stops at the METAL range mid-point.

6-8 ADJUSTMENT AND TEST POINT LOCATIONS

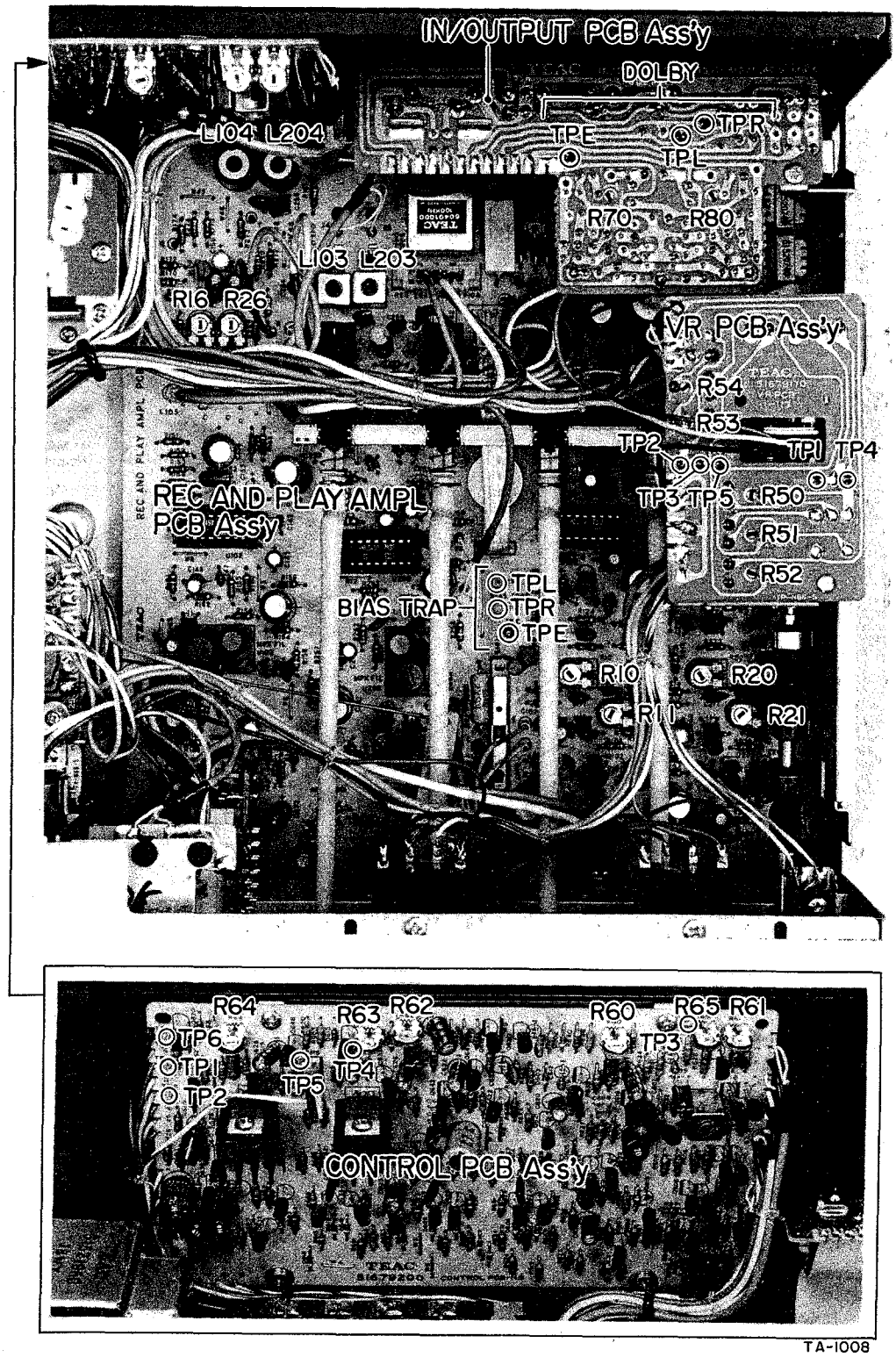
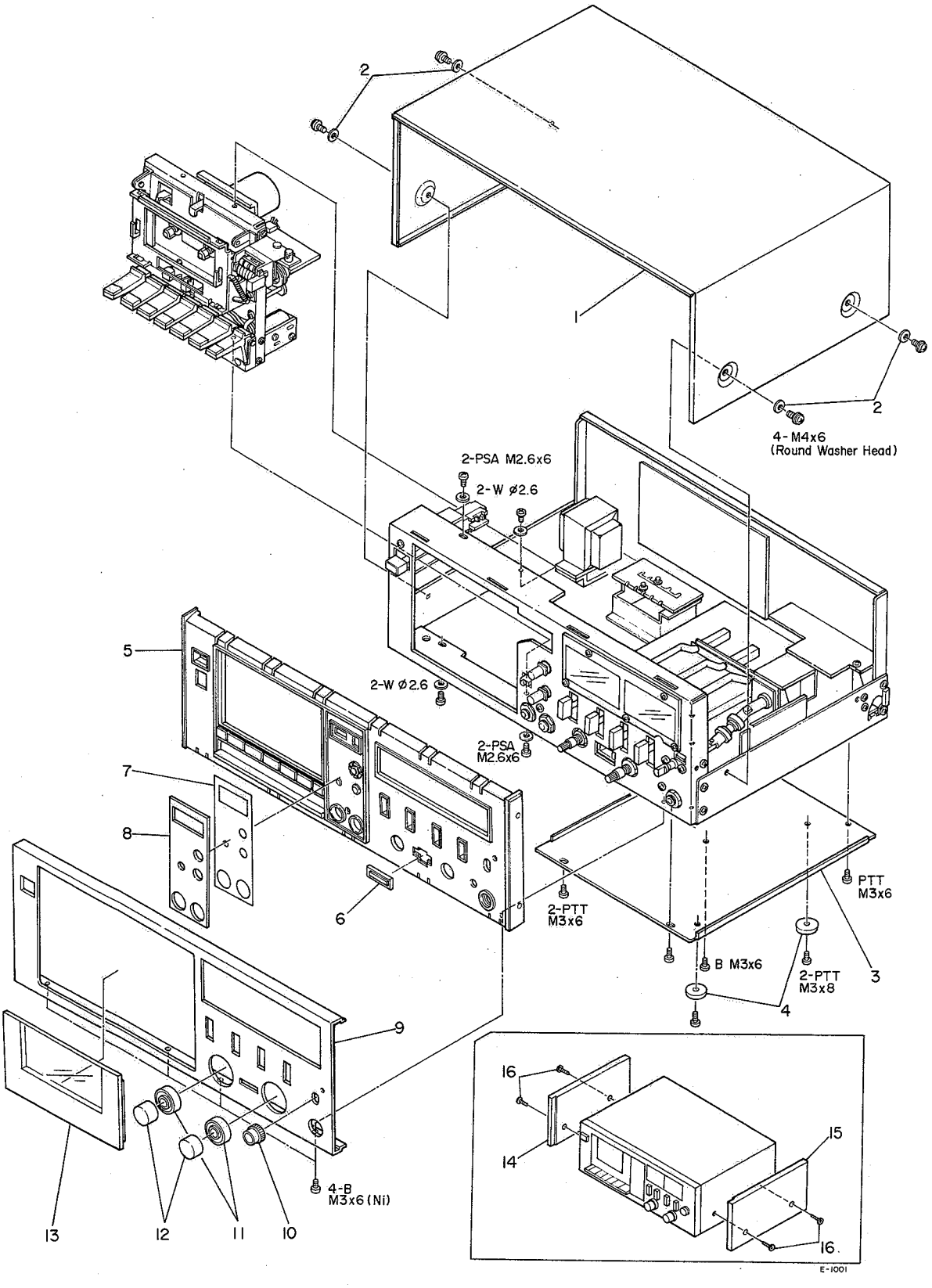


Fig. 6-12

7 EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW-1



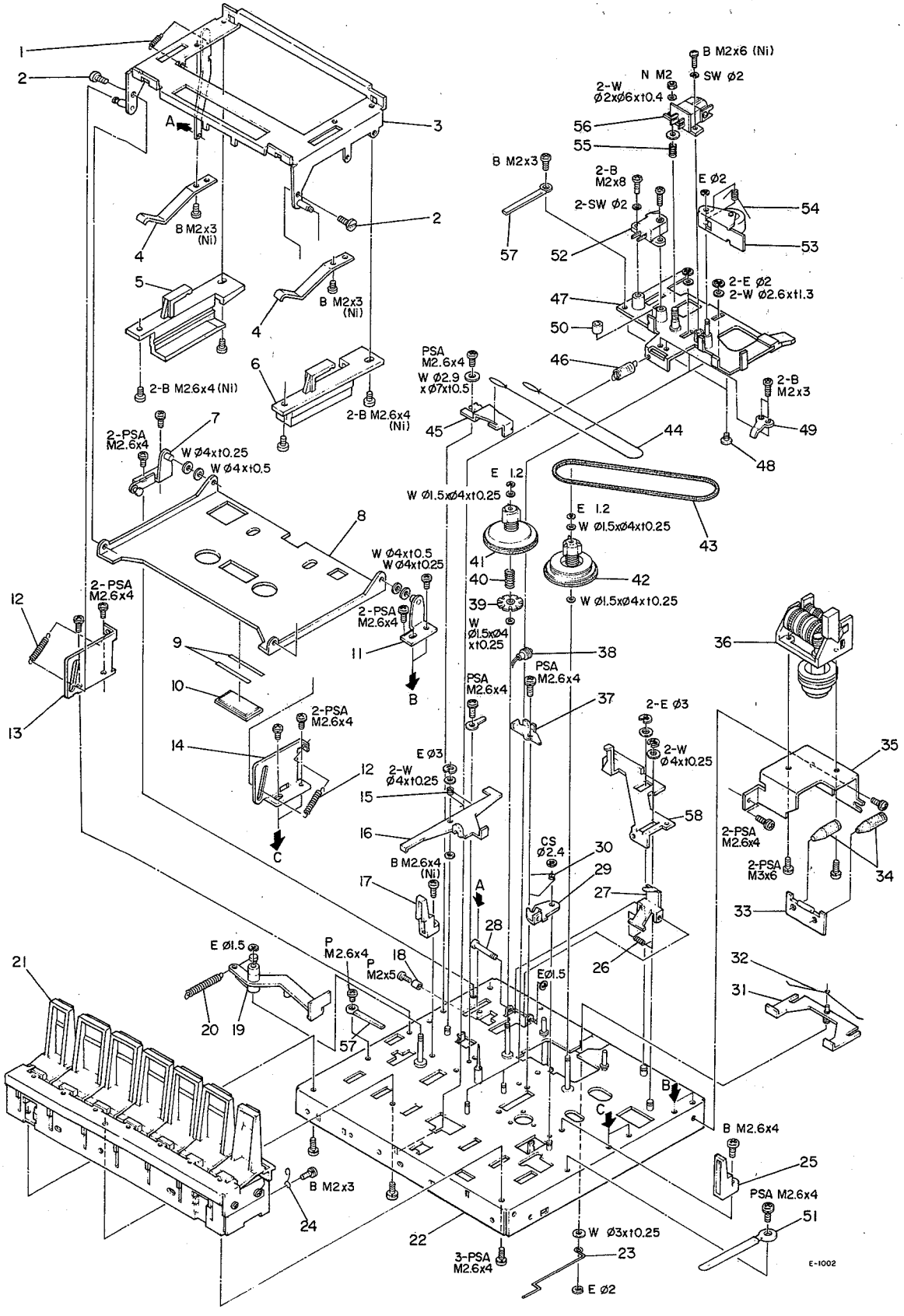
Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	*55522020	Cover, Top	
1 - 2	*55800050	Washer, Fiber	
1 - 3	*55522010	Cover, REC AND PLAY AMPL PCB	
1 - 4	*55346710	Foot	
1 - 5	*55022300	Front Panel Assy; C	
1 - 6	*55346320	Lens, Lamp	
1 - 7	*55556290	Tape, Adhesive	
1 - 8	*55557170	Panel, Indication; C	
1 - 9	*55523980	Panel Assy, Front; D	
1 - 10	55047460	Knob Assy, D	
1 - 11	55346440	Knob, C	
1 - 12	55346430	Knob, B	
1 - 13	55031970	Cover Assy, Cassette; E	
1 - 14	*55420080	Board, Side; L	LIMITED AREA
1 - 15	*55420090	Board, Side; R	LIMITED AREA
1 - 16	*55045490	Screw Assy, C	LIMITED AREA

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	51280650	Cord, Input-output Connection	
	51013450	Information Supplement, Cassette	U.S.A.
	51014950	Information Supplement, Cassette	All except U.S.A.
	51017190	A-430 Owner's Manual	U.S.A.
	51017200	A-430 Owner's Manual	All except U.S.A.

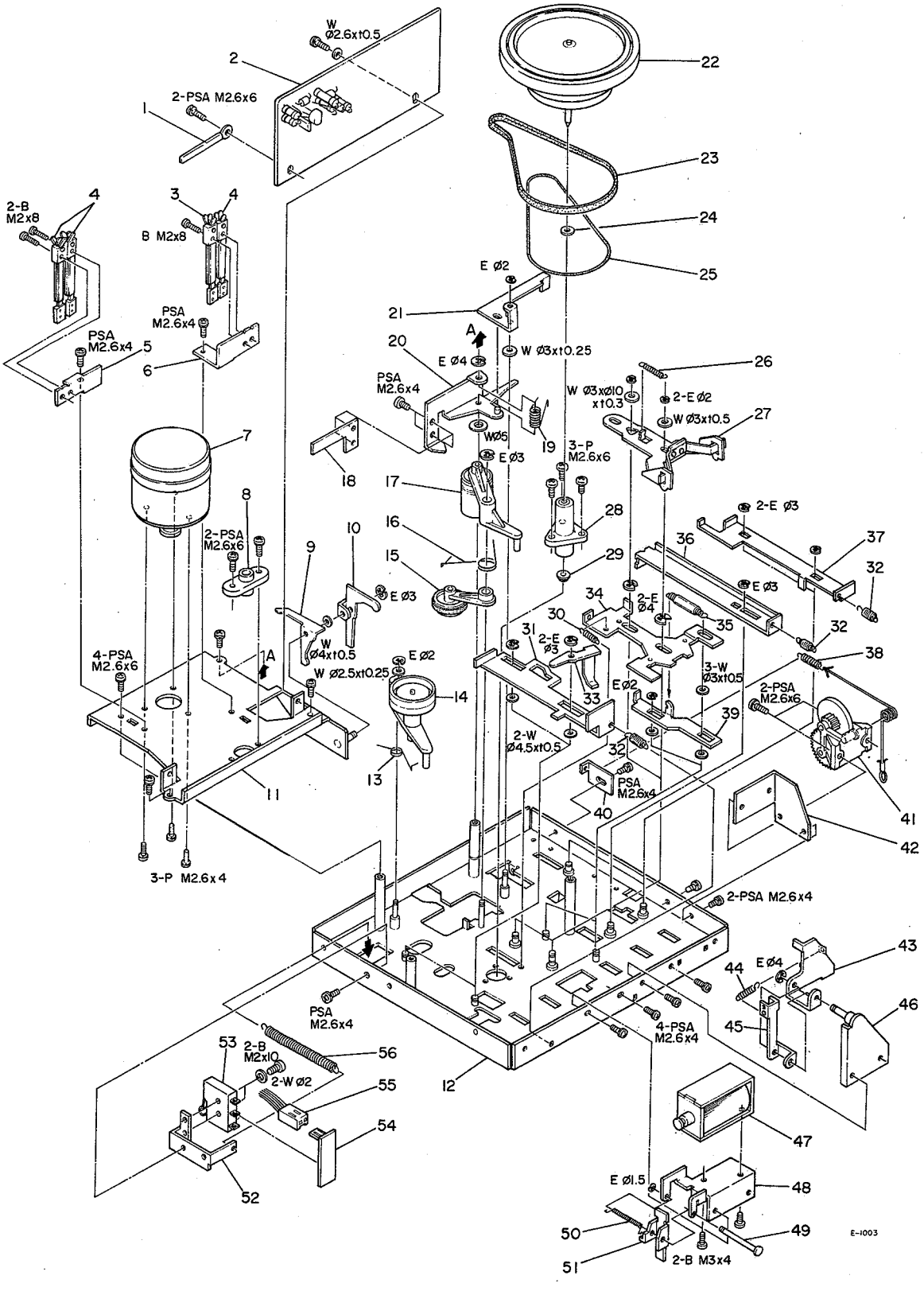
EXPLODED VIEW-2



Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2 - 1	*55203380	Spring, Hook	
2 - 2	*55810570	Screw, Cassette Holder	
2 - 3	*55044763	Holder Assy, Cassette; A	
2 - 4	55550870	Spring, Plate	
2 - 5	55344512	Cassette Guide, Left	
2 - 6	55344502	Cassette Guide, Right	
2 - 7	*55044780	Bracket Assy, Holder; B	
2 - 8	*55533030	Holder, Cassette; C	
2 - 9	*55555820	Tape, Adhesive	
2 - 10	*55346380	Lens, Lamp	
2 - 11	*55044770	Bracket Assy, Holder; A	
2 - 12	*55203370	Spring, Eject	
2 - 13	*55550920	Guide Plate, Holder; B	
2 - 14	*55550910	Guide Plate, Holder; A	
2 - 15	*55203350	Spring, Arm	
2 - 16	*55555830	Arm, Preventing	
2 - 17	55346410	Guide, Cassette; L	
2 - 18	*55446980	Collar, Stopper	
2 - 19	*55331740	Arm, Tension	
2 - 20	*55242080	Spring, Tension Arm	
2 - 21	55021644	Button Assy	
2 - 22	*55022310	Chassis Assy, Mechanism	
2 - 23	*55203340	Rod, Brake Actuating	
2 - 24	*55203420	Clamper, Cord	
2 - 25	55344441	Guide, Cassette	
2 - 26	*55203490	Spring, Preventing; A	
2 - 27	*55550811	Lever, Safety, C	
2 - 28	*55446560	Shaft, Safety Lever	
2 - 29	50846432	Plate, Pause Lock	
2 - 30	50845502	Spring, Pause Lock	
2 - 31	*55044720	Plate Assy, Brake	
2 - 32	*55203330	Spring, Brake	
2 - 33	*51685490	PCB Assy, REED SWITCH	
	*51380060	PCB, REED SWITCH	Part of 2 - 33
	51675490	Switch, Reed	Part of 2 - 33
2 - 34	55344480	Cushion, Rubber	
2 - 35	*55550710	Bracket, Counter	
2 - 36	55031300	Counter Assy	
2 - 37	*55555810	Bracket, Lamp	
2 - 38	*51422010	Lamp, w/Holer	
2 - 39	*55343040	Plate, Friction	
2 - 40	*55242070	Spring, Friction Plate	
2 - 41	55046880	Reel Table Assy, Supply	
2 - 42	55044640	Reel Table Assy, Take-up	
2 - 43	55344470	Belt, Counter	
2 - 44	*55046840	String Assy, Brake	
2 - 45	*55555840	Plate, Adjusting	
2 - 46	55203260	Spring, Lever; A	
2 - 47	*55046860	Plate Assy, Head Base	
2 - 48	*55346400	Spacer, Head Base Plate	
2 - 49	*55449760	Plate, Head Base Pressure	
2 - 50	*55348440	Cushion, Button; B	
2 - 51	*55810380	Clamper, Cord; A	
2 - 52	55696130	Head, Erase	
2 - 53	55044590	Pinch Roller Assy	
2 - 54	55203271	Spring, Pinch Roller	
2 - 55	55200021	Spring, Head	
2 - 56	55696120	Head, REC-PLAY; Dual Gap	
2 - 57	*50279870	Clamper, Cord; D	
2 - 58	*55557080	Lever, Detecting	

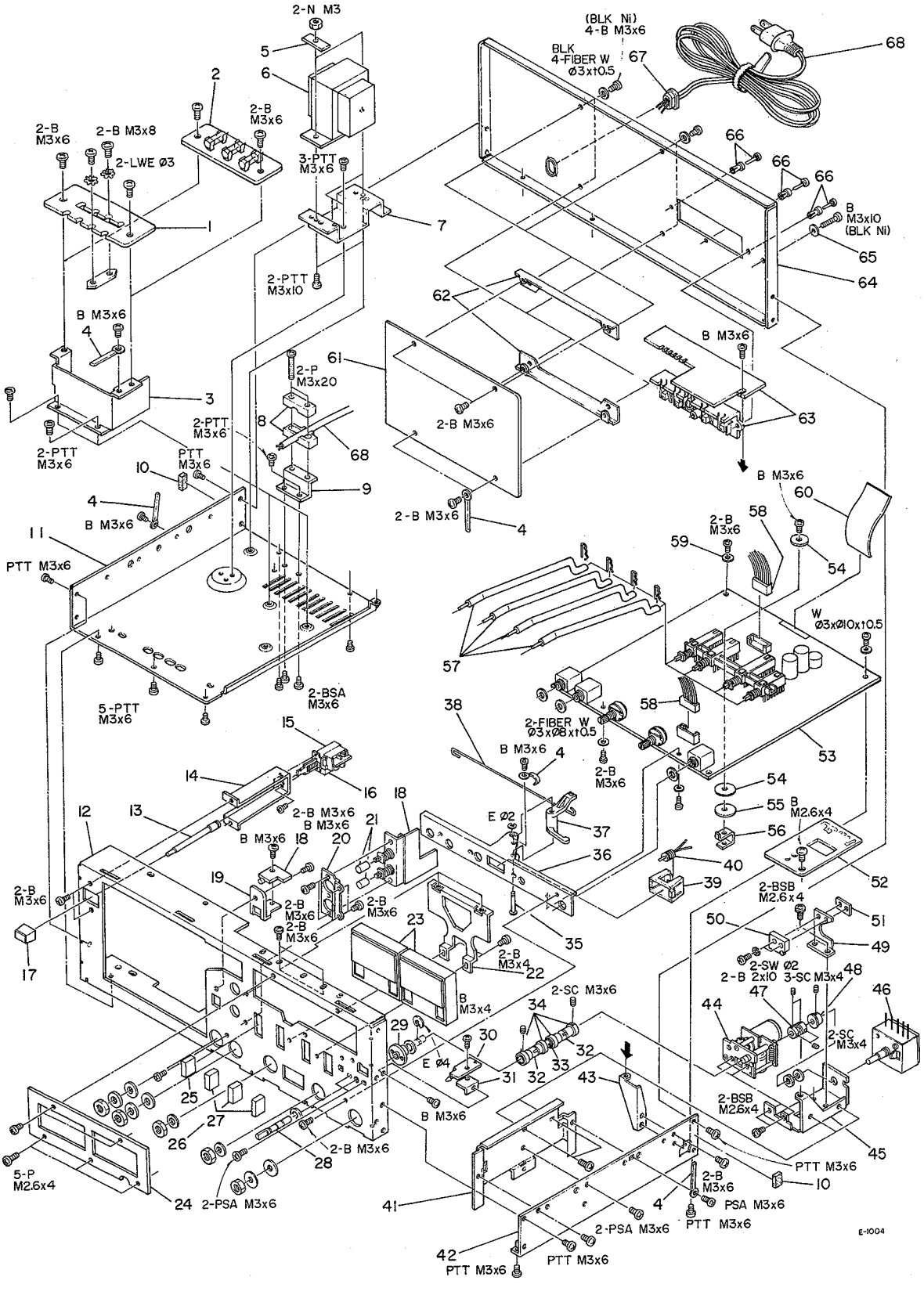
EXPLODED VIEW-3



Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	*55810380	Clamper, Cord; A	
3 - 2	*51689190	PCB Assy, MECHANISM (Power Supply)	
3 - 3	51350010	Switch, Leaf; 2A	
3 - 4	51350020	Switch, Leaf; 1A	
3 - 5	*55550690	Bracket, Switch; A	
3 - 6	*55550700	Bracket, Switch; B	
3 - 7	71051260	Motor Assy, DC	
3 - 8	*55342770	Bearing, Flywheel	
3 - 9	*55550670	Lever, Slide Switch	
3 - 10	*55550680	Arm, Record	
3 - 11	*55044630	Plate Assy, Motor	
3 - 12	*55022310	Chassis Assy, Mechanism	
3 - 13	55203300	Spring, Tension	
3 - 14	55044660	Pulley Assy, Tension	
3 - 15	55044690	Idler Assy, Fast Wind; B	
3 - 16	55203310	Spring, Idler Assy	
3 - 17	55044670	Idler Assy, A	
3 - 18	*55557130	Lever, Release	
3 - 19	*55203360	Spring, Pressure	
3 - 20	*55044752	Arm Assy, Cassette Pressure; A	
3 - 21	*55550850	Arm, Cassette Pressure; B	
3 - 22	55044610	Flywheel Assy, Capstan	
3 - 23	55344460	Belt, Capstan Drive	
3 - 24	55500310	Washer, Thrust	
3 - 25	55344160	Belt, Fast Wind	
3 - 26	*55203480	Spring, Lever; D	
3 - 27	*55044710	Lever Assy, Fast Wind	
3 - 28	55040910	Housing Assy, Capstan	
3 - 29	55341300	Washer, Oil Retaining	
3 - 30	*55203320	Spring, Lever; B	
3 - 31	*55044731	Lever Assy, Pause	
3 - 32	55203260	Spring, Lever; A	
3 - 33	*55550770	Arm, Pause	
3 - 34	*55550740	Plate, Brake Actuating	
3 - 35	*55203460	Spring, Lever; C	
3 - 36	*55550800	Lever, Record	
3 - 37	*55550820	Lever, Eject	
3 - 38	*55203390	Spring, Damper	
3 - 39	*55551630	Lever, FF; C	
3 - 40	*55550950	Angle Plate, Spring	
3 - 41	55044940	Holder Assy, Damper; B	
3 - 42	*55550940	Bracket, Damper	
3 - 43	*55550790	Arm, Record; B	
3 - 44	*55203511	Spring, Record	
3 - 45	*55551990	Arm, Record; C	
3 - 46	*55044740	Holder Assy, Record Arm	
3 - 47	*55044811	Solenoid	
3 - 48	*55551001	Bracket, Solenoid	
3 - 49	*55446650	Shaft, Release Arm; A	
3 - 50	*55203430	Spring, Release Arm	
3 - 51	*55551020	Arm, Release; B	
3 - 52	*55557071	Holder, Switch	
3 - 53	51300030	Switch, Micro	
3 - 54	*51689180	PCB Assy, SW	
	*51679180	PCB, SW-138	Part of 3 - 54
3 - 55	*51221650	Connector Socket, 3P	
3 - 56	*55242260	Spring, Switch	

EXPLODED VIEW-4



Parts marked with *require longer delivery time than regular parts.

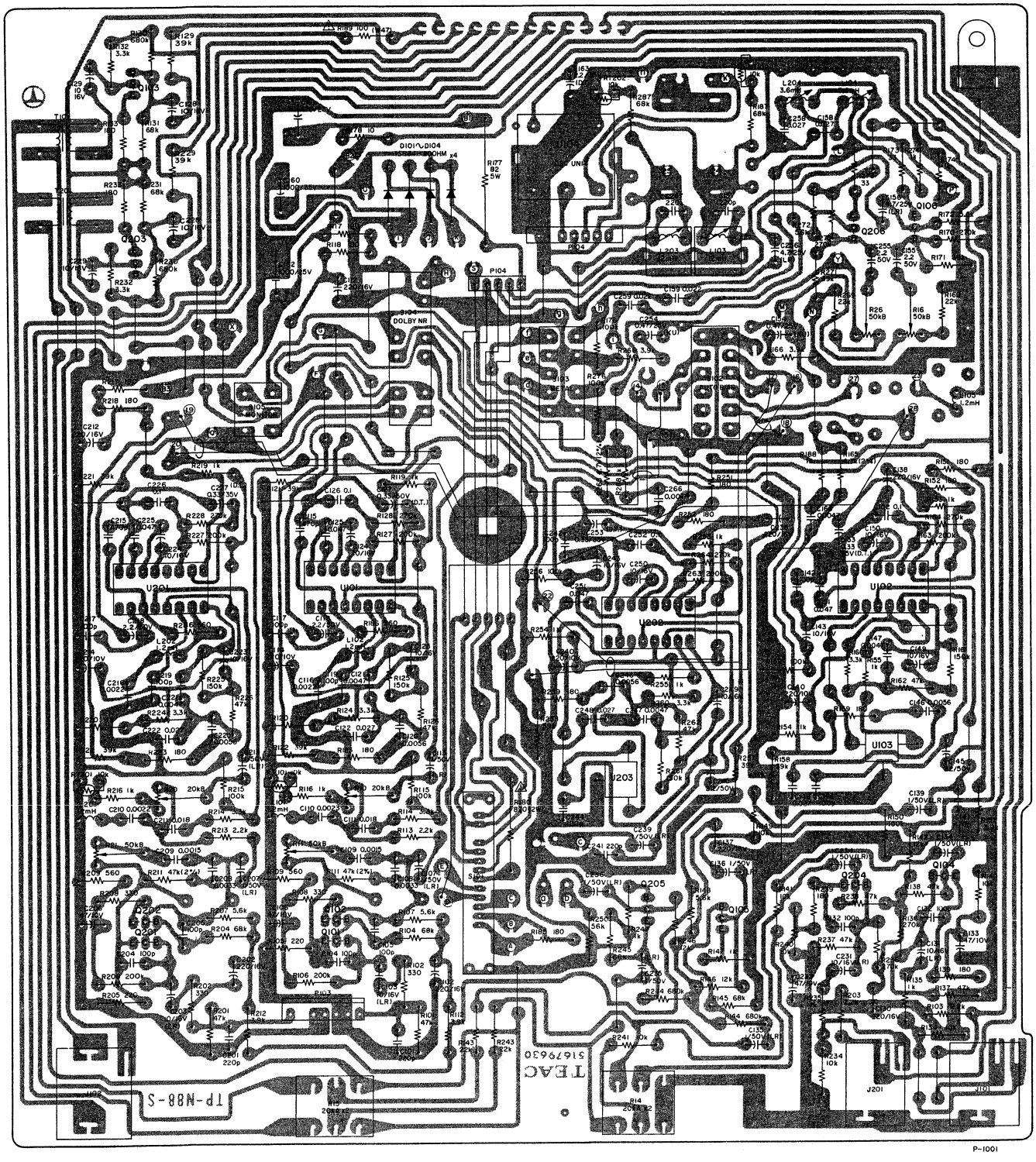
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	*51685481	PCB Assy, VOLTAGE SELECTOR	GENERAL EXPORT
	*51675481	PCB, VOLTAGE SELECTOR	Part of 4 - 1
	*55550620	Plate, Selector; A	Part of 4 - 1
4 - 2	*51689150	PCB Assy, FUSE	EUROPE, U.K.
	*51679150	PCB, FUSE	Part of 4 - 2
	*51420870	Holder, FUSE	Part of 4 - 2
	51421830	Fuse, 315 mAT	F502, F502
	51421860	Fuse, 800 mAT 250V	F503
4 - 3	*55555950	Bracket, PCB	EUROPE, U.K., GENERAL EXPORT
4 - 4	*55810380	Clamper, Cord; A	
4 - 5	*55556260	Washer, Transformer	
4 - 6	51521930	Transformer, Power	U.S.A., CANADA
	51521950	Transformer, Power	EUROPE, AUSTRALIA, U.K.
	51521960	Transformer, Power	GENERAL EXPORT
4 - 7	*55559091	Bracket, Transformer; B	
4 - 8	*55340841	Clamper, AC Power Cord	EUROPE, U.K.
4 - 9	*55550640	Bracket, Clamper	
4 - 10	*55550550	Cushion	
4 - 11	*55521991	Chassis, Bottom	
4 - 12	*55510370	Chassis, Front	
4 - 13	*55344221	Rod, Power Switch	
4 - 14	*55550611	Bracket, Power Switch	
4 - 15	51340440	Switch, Power	EUROPE, U.K.
	51340360	Switch, Power	GENERAL EXPORT, AUSTRALIA
	51340370	Switch, Power	U.S.A.
	51340180	Switch, Power	CANADA
4 - 16	50529060	Spark Killer, 0.033 mfd + 120 ohm 125V AC	U.S.A.
	50529110	Spark Killer, 0.033 mfd + 120 ohm 250V AC	CANADA
	51890010	Spark Killer, 4700 pfd MAX	EUROPE, U.K.
	50529070	Spark Killer, 0.01 mfd + 300 ohm 400V AC	GENERAL EXPORT, AUSTRALIA
4 - 17	55346340	Button, F	
4 - 18	*51689160	PCB Assy, SW	
	*51678210	PCB, SW - 123	Part of 4 - 18
	*51678230	PCB, LED	Part of 4 - 18
	51340850	Switch, Push ; 2-gang	Part of 4 - 18
	*51831060	Carbon Res., 10 k ohm ¼W	Part of 4 - 18
	51430470	LED	Part of 4 - 18
4 - 19	*55557150	Holder, LED	
4 - 20	*55555740	Bracket,Switch	
4 - 21	*55346350	Button, Push	
4 - 22	*55532820	Bracket, Meter; A	
4 - 23	51650590	Meter, Peak	
4 - 24	*55557120	Plate, Meter; C	
4 - 25	55347180	Button, H	
4 - 26	55346330	Button, E	
4 - 27	55346510	Button, G	
4 - 28	*55450480	Shaft, BIAS Var. Res.	
4 - 29	*55450470	Bearing, Shaft	
4 - 30	*51689250	PCB Assy, LED-2	
	*51679250	PCB, LED - 2	Part of 4 - 30
	51430470	LED	Part of 4 - 30
4 - 31	*55555730	Bracket, LED PCB	
4 - 32	*55347190	Joint, Universal	
4 - 33	*55450440	Shaft, Joint	
4 - 34	*55450460	Ring, Joint	
4 - 35	*55446270	Shaft, Record Lever	
4 - 36	*55532750	Bracket, Record Lever	
4 - 37	*55344240	Lever, Record	
4 - 38	*55203520	Link, Record Lever	
4 - 39	*55346290	Holder, Lamp	
4 - 40	51420860	Lamp, w/Holder	

(Continued on page 30)

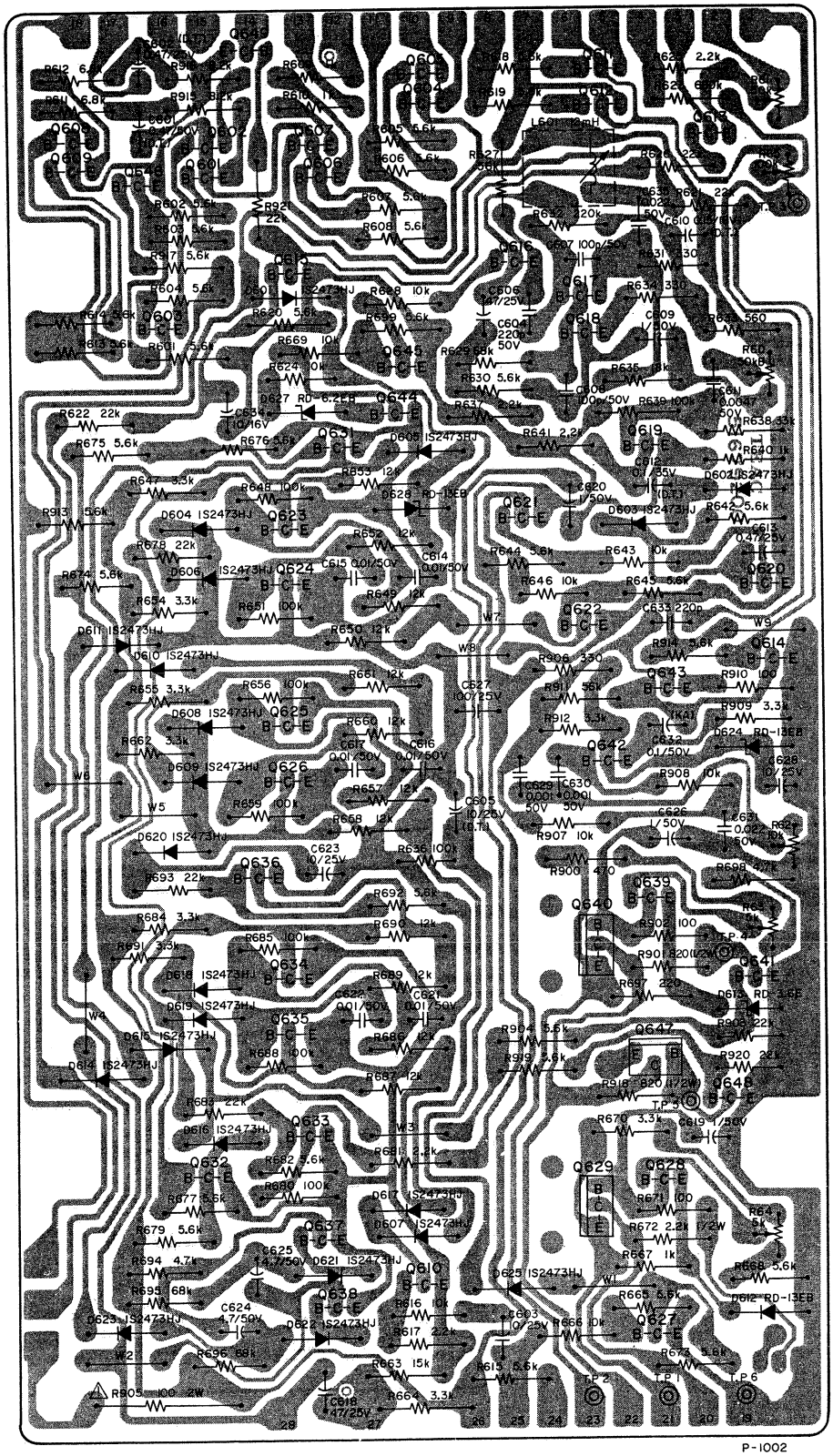
8 PC BOARDS AND PARTS LIST

PC Boards shown viewed from foil side.

REC AND PLAY AMPL PCB ASSY

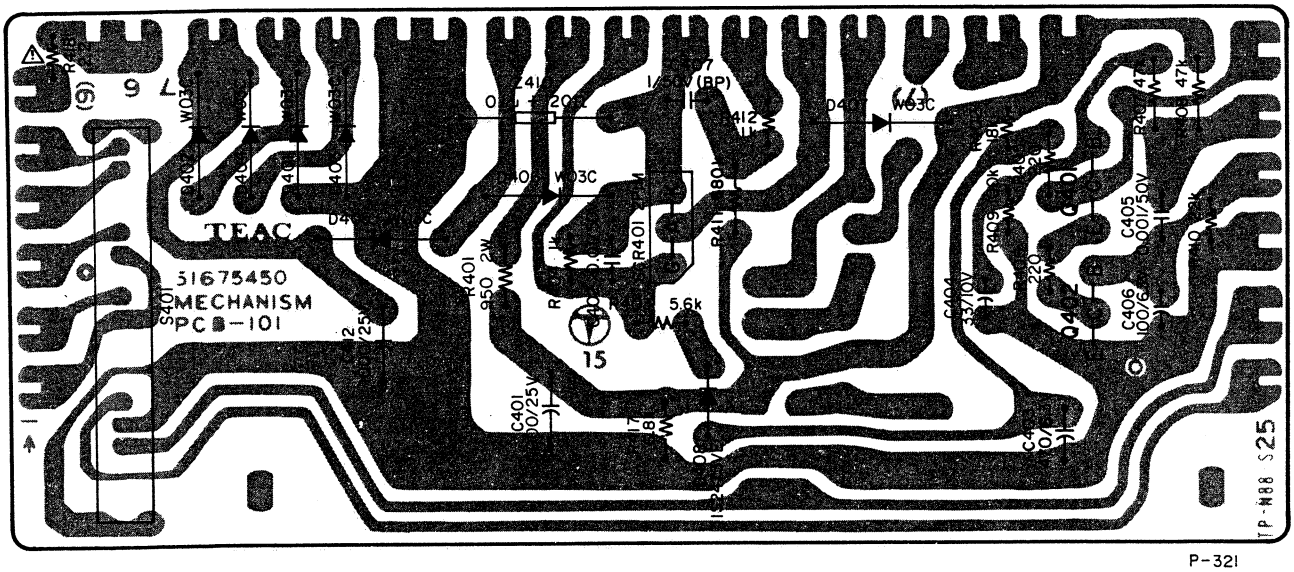


CONTROL PCB ASSY

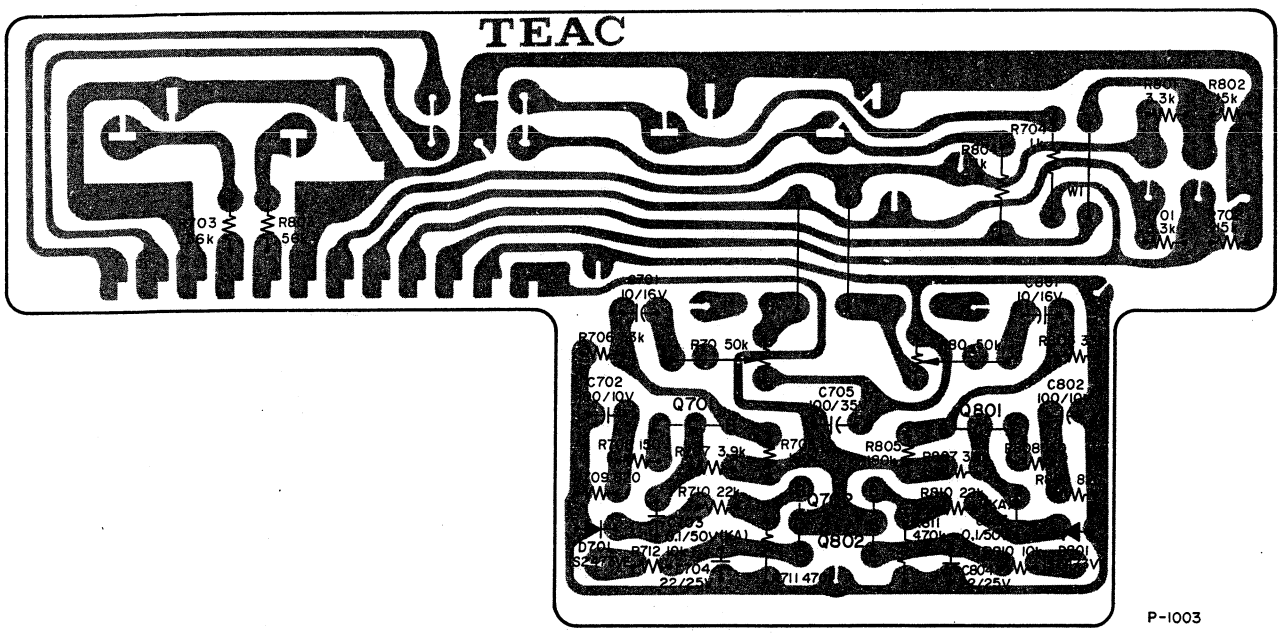


P-1002

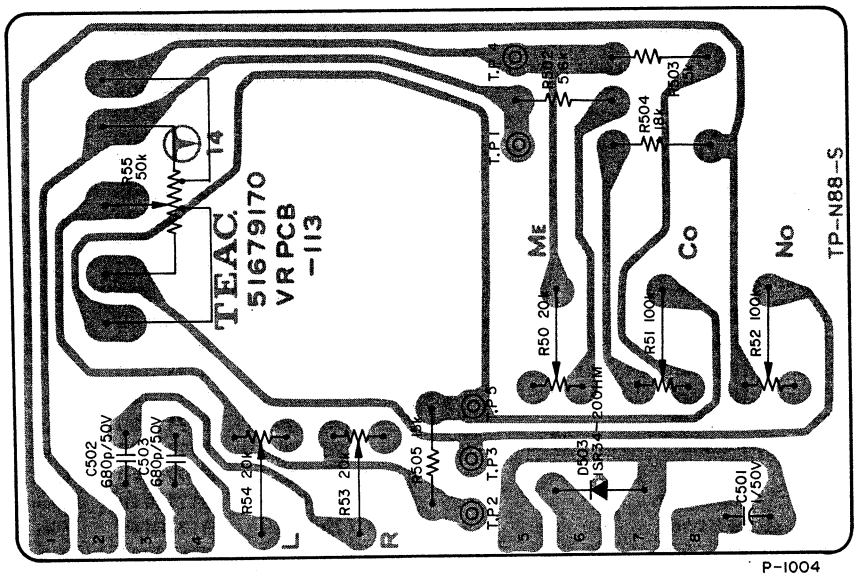
MECHANISM PCB ASSY (POWER SUPPLY)



IN/OUTPUT PCB ASSY



VR PCB ASSY



REC AND PLAY AMPL PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51689630	PCB Assy
	51679630	PCB
	ICs	
U101, U201	51470400	NE645B
U102, U202	51470400	NE645B
	TRANSISTORS	
Q101, Q201	51450340	2SC900UA
Q102, Q202	51450340	2SC900UA
Q103, Q203	50424860	2SC536G
Q104, Q204	51450340	2SC900UA
Q105, Q205	51450340	2SC900UA
Q106, Q206	50424860	2SC536G
	DIODES	
D101~D104	51431130	1SR34-200HM
	RESISTORS	
	All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.	
R101, R201	51815220	47 k ohm
R102, R202	51814700	330 ohm
R103, R203	51814980	2.2 k ohm
R104, R204	51815260	68 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R105, R205	51814660	220 ohm
R106, R206	51815370	200 k ohm
R107, R207	51815000	5.6 k ohm
R108, R208	51814700	330 ohm
R109, R209	51815480	560 ohm
R111, R211	51849710	47 k ohm 2%
R112, R212	51814960	3.9 k ohm
R113, R213	51814900	2.2 k ohm
R114, R214	51814940	3.3 k ohm
R115, R215	51815300	100 k ohm
R116, R216	51814820	1 k ohm
R117, R217	51814640	180 ohm
R118, R218	51814640	180 ohm
R119, R219	51814820	1 k ohm
R120, R220	51814820	1 k ohm
R121, R221	51815200	39 k ohm
R122, R222	51815200	39 k ohm
R123, R223	51814640	180 ohm
R124, R224	51814940	3.3 k ohm
R125, R225	51815340	150 k ohm
R126, R226	51815220	47 k ohm
R127, R227	51815370	200 k ohm
R128, R228	51815400	270 k ohm
R129, R229	51815200	39 k ohm
R130, R230	51815500	680 k ohm
R131, R231	51815260	68 k ohm
R132, R232	51814940	3.3 k ohm
R133, R233	51814640	180 ohm
R134, R234	51815060	10 k ohm
R135, R235	51814820	1 k ohm
R136, R236	51815400	270 k ohm

A-430

REF. NO.	PARTS NO.	DESCRIPTION	
R137, R237	51815220	47 k ohm	
R138, R238	51815220	47 k ohm	
R139, R239	51814640	180 ohm	
R140, R240	51815060	10 k ohm	
R141, R241	51815060	10 k ohm	
R142	51815080	12 k ohm	
R143, R243	51815140	22 k ohm	
R144, R244	51815500	680 k ohm	
R145, R255	51815260	68 k ohm	
R146, R246	51815080	12 k ohm	
R147, R247	51814820	1 k ohm	
R148	51815000	5.6 k ohm	
R149	51815060	10 k ohm	
R150	51815300	100 k ohm	
R151, R251	51814640	180 ohm	
R152, R252	51814640	180 ohm	
R153, R253	51814820	1 k ohm	
R154, R254	51814820	1 k ohm	
R155, R255	51814820	1 k ohm	
R156, R256	51815300	100 k ohm	
R157, R257	51815200	39 k ohm	
R158, R258	51815200	39 k ohm	
R159, R259	51814640	180 ohm	
R160, R260	51814940	3.3 k ohm	
R161, R261	51815340	150 k ohm	
R162, R262	51815220	47 k ohm	
R163, R263	51815370	200 k ohm	
R164, R264	51815400	270 k ohm	
R165, R265	51849480	4.7 k ohm	
R166, R266	51814960	3.9 k ohm	
R169, R269	51815140	22 k ohm	
R170, R270	51815400	270 k ohm	
R171, R271	51815200	39 k ohm	
R172, R272	51815000	5.6 k ohm	
R173, R273	51814460	33 ohm	
R174, R274	51814820	1 k ohm	
R176, R276	51815300	100 k ohm	
R177	51844270	82 ohm	5W Cement
R178	51814340	10 ohm	
R180	51848130	820 ohm	2W Non Flammable
R185	51814640	180 ohm	
R186, R286	51814760	560 ohm	
R187, R287	51815260	68 k ohm	
R188, R288	51814820	1 k ohm	
R189	51818480	100 ohm	Non Flammable
R250	51815240	56 k ohm	

THERMISTORS

RT101, RT201	51431270	10 k ohm	S5C14
RT102, RT202	51431270	10 k ohm	S5C14

CAPACITORS

C101, C201	51722160	Ceramic	220 pfd	50V 5%
C102, C202	50554390	Elec.	220 mfd	16V
C103, C203	51715650	Elec.	10 mfd	16V (LR)
C104, C204	51722120	Ceramic	100 pfd	50V 10%
C105, C205	51722120	Ceramic	100 pfd	50V 10%
C106, C206	51713460	Elec.	47 mfd	10V
C107, C207	51715590	Elec.	1 mfd	50V (LR)
C108, C208	51703640	Mylar	0.0033 mfd	50V 5%

REF. NO.	PARTS NO.	DESCRIPTION		
C109, C209	51703560	Mylar	0.0015 mfd	50V 5%
C110, C210	51703600	Mylar	0.0022 mfd	50V 5%
C111, C211	51718620	Mylar	0.018 mfd	50V 5%
C112, C212	50554390	Elec.	220 mfd	16V
C113, C213	51715590	Elec.	1 mfd	50V (LR)
C114, C214	51719880	Elec.	220 mfd	10V
C115, C215	51722200	Ceramic	470 pfd	50V 10%
C116, C216	51703600	Mylar	0.0022 mfd	50V 5%
C117, C217	51722120	Ceramic	100 pfd	50V 10%
C118, C218	51712900	Elec.	2.2 mfd	50V
C119, C219	51722120	Ceramic	100 pfd	50V 10%
C120, C220	51703700	Mylar	0.0056 mfd	50V 5%
C121, C221	51703680	Mylar	0.0047 mfd	50V 5%
C122, C222	51718660	Mylar	0.027 mfd	50V 5%
C123, C223	51713140	Elec.	10 mfd	16V
C124, C224	51713140	Elec.	10 mfd	16V
C125, C225	51718720	Mylar	0.047 mfd	50V 5%
C126, C226	51719020	Mylar	0.1 mfd	50V 10%
C127, C227	51720240	Dip. Tant.	0.33 mfd	35V
C128, C228	51713140	Elec.	10 mfd	16V
C129, C229	51713140	Elec.	10 mfd	16V
C130	50554390	Elec.	220 mfd	16V
C131, C231	51715650	Elec.	10 mfd	16V (LR)
C132, C232	51722120	Ceramic	100 pfd	50V 10%
C133, C233	51713460	Elec.	47 mfd	10V
C134, C234	51715590	Elec.	1 mfd	50V (LR)
C135, C235	51715590	Elec.	1 mfd	50V (LR)
C136, C236	51715590	Elec.	1 mfd	50V (LR)
C137	50554390	Elec.	220 mfd	16V
C138, C238	50554390	Elec.	220 mfd	16V
C139, C239	51715590	Elec.	1 mfd	50V (LR)
C140, C240	51719860	Elec.	220 mfd	10V
C141	51722200	Ceramic	470 pfd	50V 10%
C142, C242	51722120	Ceramic	100 pfd	50V 10%
C143, C243	51713140	Elec.	10 mfd	16V
C144, C244	51722200	Ceramic	100 pfd	50V 10%
C145, C245	51712900	Elec.	2.2 mfd	50V
C146, C246	51703700	Mylar	0.0056 mfd	50V 5%
C147, C247	51703680	Mylar	0.0047 mfd	50V 5%
C148, C248	51718660	Mylar	0.027 mfd	50V 5%
C149, C249	51713140	Elec.	10 mfd	16V
C150, C250	51713140	Elec.	10 mfd	16V
C151, C251	51718720	Mylar	0.047 mfd	50V 5%
C152, C252	51719020	Mylar	0.1 mfd	50V 10%
C153, C253	51720240	Dip. Tant.	0.33 mfd	35V
C154, C254	51713700	Elec.	0.47 mfd	25V (KU)
C155, C255	51712900	Elec.	2.2 mfd	50V
C156, C256	51715630	Elec.	47 mfd	25V (LR)
C157, C257	51728120	Polyst.	220 pfd	50V 5%
C158, C258	51718660	Mylar	0.027 mfd	50V 5%
C159, C259	51718640	Mylar	0.022 mfd	50V 5%
C160	51700110	Elec.	1000 mfd	35V
C161	50554420	Elec.	470 mfd	25V
C162	50555580	Elec.	1000 mfd	25V
C163	51720700	Dip. Tant.	2.2 mfd	35V
C166, C266	51703680	Mylar	0.0047 mfd	50V 5%
C241	51722160	Ceramic	220 pfd	50V

VARIABLE RESISTORS

R10, R20	51502330	Semi-fixed	20 k ohm-B
R11, R21	51500940	Semi-fixed	50 k ohm-B
R14, R15	51502270	20 k ohm-A x 2	
R16, R26	62600950	Semi-fixed	50 k ohm-B

REF. NO.	PARTS NO.	DESCRIPTION
	COILS/TRANSFORMERS	
L101, L201	50566611	Coil, Choke; 1.2 mH
L102, L202	50566611	Coil, Choke; 1.2 mH
L103, L203	50566550	Coil, Trap; 12 mH
L104, L204	51600420	Coil, Rec. EQ; 3.6 mH
L105	50566611	Coil, Choke; 1.2mH
T101, T201	51520740	Transformer, Output 3k: 8 ohm
	MISCELLANEOUS	
U103, U203	51600400	Filter, Low-pass; 19 kHz
U104	50401000	OSC Unit, 100 kHz
J101, J201	51240390	Jack, MIC
J102	51240400	Jack, PHONES
S101	51310300	Switch, Slide; 6PDT
S102~S105	51340960	Switch, Push; 4-gang
P103, P104	51220100	Connector Plug, 6P
	51470160	Sockt, IC; 16P
	51274570	Wire
	51274580	Wire, Ribbon
	55447500	Pin, Test Point
	55555900	Plate, GND; A

CONTROL PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51689200	PCB Assy
	51679200	PCB
	TRANSISTORS	
Q601, Q602	51450920	2SC1740LN(S)
Q603	50424860	2SC536G
Q604~Q609	51450920	2SC1740LN(S)
Q610	50424860	2SC536G
Q611~Q614	51450920	2SC1740LN(S)
Q615	50425530	2SA733(P)
Q616~Q619	51450920	2SC1740LN(S)
Q620	50424860	2SC536G
Q621	50425530	2SA733(P)
Q623~Q628	50424860	2SC536G
Q629	51450870	2SD313(E)
Q631~Q639	50424860	2SC536G
Q640	51450870	2SD313(E)
Q641	50424860	2SC536G
Q642, Q643	51450920	2SC1740LN(S)
Q644	50424860	2SC536G
Q645	50425530	2SA733P
Q646	50424860	2SC536G
Q647	51450870	2SD313(E)
Q648	50424860	2SC536G
Q649	51450920	2SC1740LN(S)

REF. NO.	PARTS NO.	DESCRIPTION
	DIODES	
D601~D611	51431180	1S2473HJ
D612	51430590	Zener, RD-13EB
D613	51431410	Zener, RD-3.6E
D614~D623	51431180	1S2473HJ
D624	51430590	Zener, RD-13EB
D625	51431180	1S2473HJ
D627	50425540	Zenre, RD-6.2EB
D628	51430590	Zener, RD-13EB
	RESISTORS	
	All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.	
R601~R608	51815000	5.6 k ohm
R609, R610	51814820	1 k ohm
R611, R612	51849520	6.8 k ohm 2%
R613~R615	51815000	5.6 k ohm
R616	51815060	10 k ohm
R617	51814900	2.2 k ohm
R618~R620	51815000	5.6 k ohm
R621, R622	51815140	22 k ohm
R623	51815500	680 k ohm
R624	51815060	10 k ohm
R625	51814900	2.2 k ohm
R626	51815140	22 k ohm
R627	51815240	56 k ohm
R628	51815060	10 k ohm
R629	51815260	68 k ohm
R630	51815000	5.6 k ohm
R631	51814700	330 ohm
R632	51815380	220 k ohm
R633	51814760	560 ohm
R634	51814700	330 ohm
R635	51815120	18 k ohm
R636	51815300	100 k ohm
R637	51814900	2.2 k ohm
R638	51815180	33 k ohm
R639	51815300	100 k ohm
R640	51814820	1 k ohm
R641	51814900	2.2 k ohm
R642	51815000	5.6 k ohm
R643	51815060	10 k ohm
R644, R645	51815000	5.6 k ohm
R646	51815060	10 k ohm
R647	51814940	3.3 k ohm
R648	51815300	100 k ohm
R649, R650	51815080	12 k ohm
R651	51815300	100 k ohm
R652, R653	51815080	12 k ohm
R654, R655	51814940	3.3 k ohm
R656	51815300	100 k ohm
R657, R658	51815080	12 k ohm
R659	51815300	100 k ohm
R660, R661	51815080	12 k ohm
R662	51814940	3.3 k ohm
R663	51815100	15 k ohm
R664	51814940	3.3 k ohm
R665	51815000	5.6 k ohm
R666	51815060	10 k ohm
R667	51814820	1 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R668	51815000	5.6 k ohm
R669	51815060	10 k ohm
R670	51814940	3.3 k ohm
R671	51814580	100 ohm
R672	51800900	2.2 k ohm ½W
R673~R677	51815000	5.6 k ohm
R678	51815140	22 k ohm
R679	51815000	5.6 k ohm
R680	51815300	100 k ohm
R681	51814900	2.2 k ohm
R682	51815000	5.6 k ohm
R683	51815140	22 k ohm
R684	51814940	3.3 k ohm
R685	51815300	100 k ohm
R686, R687	51815080	12 k ohm
R688	51815300	100 k ohm
R689, R690	51815080	12 k ohm
R691	51814940	3.3 k ohm
R692	51815000	5.6 k ohm
R693	51815140	22 k ohm
R694	51814980	4.7 k ohm
R695, R696	51815260	68 k ohm
R697	51815380	220 ohm
R698	51814980	4.7 k ohm
R699	51815000	5.6 k ohm
R900	51814740	470 ohm
R901	51800800	820 ohm ½W
R902	51814580	100 ohm
R903	51815140	22 k ohm
R904	51815000	5.6 k ohm
R905	51847910	100 ohm 2W Non Flammable
R906	51814700	330 ohm
R907, R908	51815060	10 k ohm
R909	51814940	3.3 k ohm
R910	51814580	100 ohm
R911	51815240	56 k ohm
R912	51814940	3.3 k ohm
R913, R914	51815000	5.6 k ohm
R915, R916	51815040	8.2 k ohm
R917	51815000	5.6 k ohm
R918	51800800	820 ohm ½W
R919	51815000	5.6 k ohm
R920, R921	51815140	22 k ohm

CAPACITORS

C601, C602	51720900	Dip. Tant.	0.47 mfd	25V
C603	51712860	Elec.	10 mfd	25V
C604	51728120	Polyst.	220 pfd	50V 5%
C605	51720940	Dip. Tant.	10 mfd	25V
C606	51713500	Elec.	47 mfd	25V
C607, C608	51722120	Ceramic	100 pfd	50V
C609	51712840	Elec.	1 mfd	50V
C610	51720261	Dip. Tant.	0.15 mfd	35V
C611	51703680	Mylar	0.0047 mfd	50V 5%
C612	51720220	Dip. Tant.	0.1 mfd	35V
C613	51720900	Dip. Tant.	0.47 mfd	25V
C614~C617	51718560	Mylar	0.01 mfd	50V 5%
C618	51713500	Elec.	47 mfd	25V
C619, C620	51712840	Elec.	1 mfd	50V
C621, C622	51718560	Mylar	0.01 mfd	50V 5%
C623	51713160	Elec.	10 mfd	25V

REF. NO.	PARTS NO.	DESCRIPTION
C624, C625	51713080	Elec. 4.7 mfd 50V
C626	51712840	Elec. 1 mfd 50V
C627	51719790	Elec. 100 mfd 25V
C628	51713100	Elec. 10 mfd 25V
C629, C630	51703520	Mylar 0.001 mfd 50V 5%
C631	51718640	Mylar 0.022 mfd 50V 5%
C632	51714300	Elec. 0.1 mfd 50V (KA)
C633	51722160	Ceramic 220 pfd 50V
C634	51713140	Elec. 10 mfd 16V
C635	51718640	Mylar 0.022 mfd 50V 5%

VARIABLE RESISTORS

R60, R61	51501560	Semi-fixed 50 k ohm-B
R62	51501540	Semi-fixed 10 k ohm-B
R63, R64	51501530	Semi-fixed 5 k ohm-B
R65	51501570	Semi-fixed 100 k ohm-B

MISCELLANEOUS

TP1~TP6	55447500	Pin, Test Point
L601	50566550	Coil, Trap; 12 mH
	55531320	Heat Sink

MECHANISM PCB ASSY (POWER SUPPLY)

REF. NO.	PARTS NO.	DESCRIPTION
	51689190	PCB Assy
	51675450	PCB

TRANSISTORS

Q401, Q402	50424860	2SC536G

SCR

SCR401	51430900	2P1M

DIODES

D401~D407	51430890	W03C
D408	50425170	1S2473VE

RESISTORS

All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.

R401	50527410	950 ohm 2W Metal Film
R402	50571120	18 k ohm
R403	50571000	5.6 k ohm
R404	50570820	1 k ohm
R405, R406	50570660	220 ohm
R407, R408	50571220	47 k ohm
R409	50571300	100 k ohm
R410	50571140	22 k ohm
R411	50571500	680 k ohm

REF. NO.	PARTS NO.	DESCRIPTION		
R412	50570820	1 k ohm		
R417	50571020	6.8 k ohm		
R418	51818080	2.2 ohm	Non Flammable	
	CAPACITORS			
C401	50555580	Elec.	1000 mfd	25V
C402	50548020	Mylar	0.01 mfd	50V 10%
C403	50554600	Elec.	470 mfd	6.3V
C404	50554240	Elec.	33 mfd	10V
C405	50548320	Mylar	0.001 mfd	50V 10%
C406	50554230	Elec.	100 mfd	6.3V
C407	50559420	Elec.	1 mfd	50V (B.P.)
C412	50555580	Elec.	1000 mfd	25V
	MISCELLANEOUS			
S401	51310300	Switch, Slide; 6PDT		
Z410	50529050	Spark Killer 0.1 mfd + 120 ohm 400V AC		

IN/OUTPUT PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	51689140	PCB Assy
	51679140	PCB
	TRANSISTORS	
Q701, Q801	50424860	2SC536G
Q702, Q802	50425490	2SC1636I
	DIODES	
D701, D801	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and ¼ watt.	
R701, R801	50570940	3.3 k ohm
R702, R802	50571100	15 k ohm
R703, R803	50571240	56 k ohm
R704, R804	50570820	1 k ohm
R705, R805	50571360	180 k ohm
R706, R806	50571180	33 k ohm
R707, R807	50570960	3.9 k ohm
R708, R808	50570620	150 ohm
R709, R809	50570800	820 ohm
R710, R810	50571140	22 k ohm
R711, R811	50571460	470 k ohm
R712, R812	50571060	10 k ohm

REF. NO.	PARTS NO.	DESCRIPTION		
	CAPACITORS			
C701, C801	50554050	Elec.	10 mfd	16V
C702, C802	50554570	Elec.	100 mfd	10V
C703, C803	51703140	Elec.	0.1 mfd	50V (KA)
C704, C804	50554950	Elec.	22 mfd	25V
C705	50554170	Elec.	100 mfd	35V
	VARIABLE RESISTORS			
R70, R80	51500570	Semi-fixed 50 k ohm-B		
	MISCELLANEOUS			
J501	51260301	Terminal Assy		
	55447500	Pin, Test Point		
	51679220	PCB, SHIELD		

VR PCB ASSY

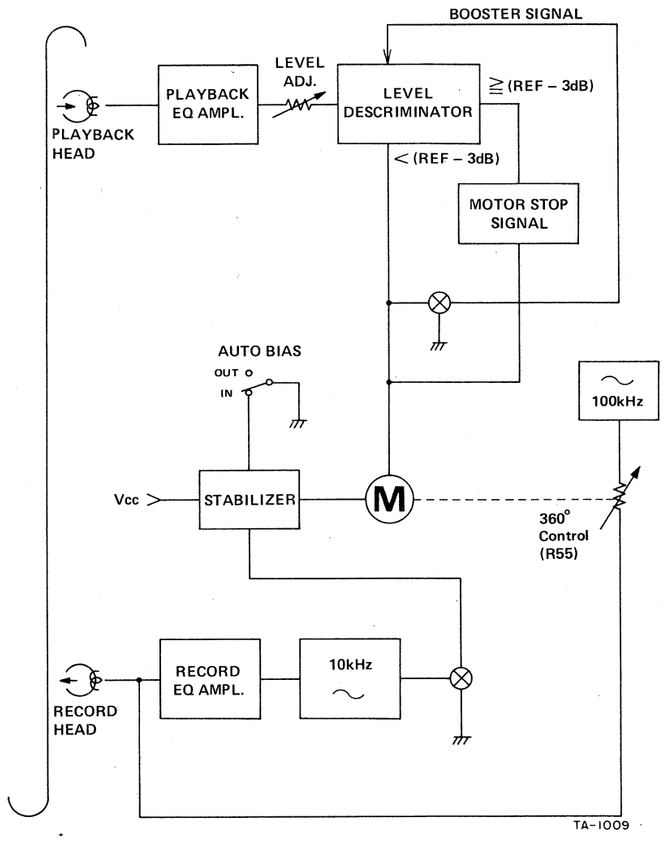
REF.NO.	PARTS NO.	DESCRIPTION		
	51689170	PCB Assy		
	51679170	PCB		
	DIODE			
D503	51431130	1SR34-200HM		
	CARBON RESISTORS			
	All resistors are rated ± 5% tolerance and ¼ watt.			
R502	51831000	5.6 k ohm		
R503	51831100	15 k ohm		
R504	51831120	18 k ohm		
R505	51831100	15 k ohm		
	CAPACITORS			
C501	50554540	Elec.	1mfd	50V
C502, C503	51728240	Polyst.	680pfd	50V 5%
	VARIABLE RESISTORS			
R50	51502330	Semi-fixed 120 k ohm		
R51, R52	51500960	Semi-fixed 100 k ohm		
R53, R54	51502330	Semi-fixed 20 k ohm		
R55	51502410	360° Control 50 k ohm		
	MISCELLANEOUS			
TP1~TP5	55447500	Pin, Test Point		

Parts marked with *require longer delivery time than regular parts.

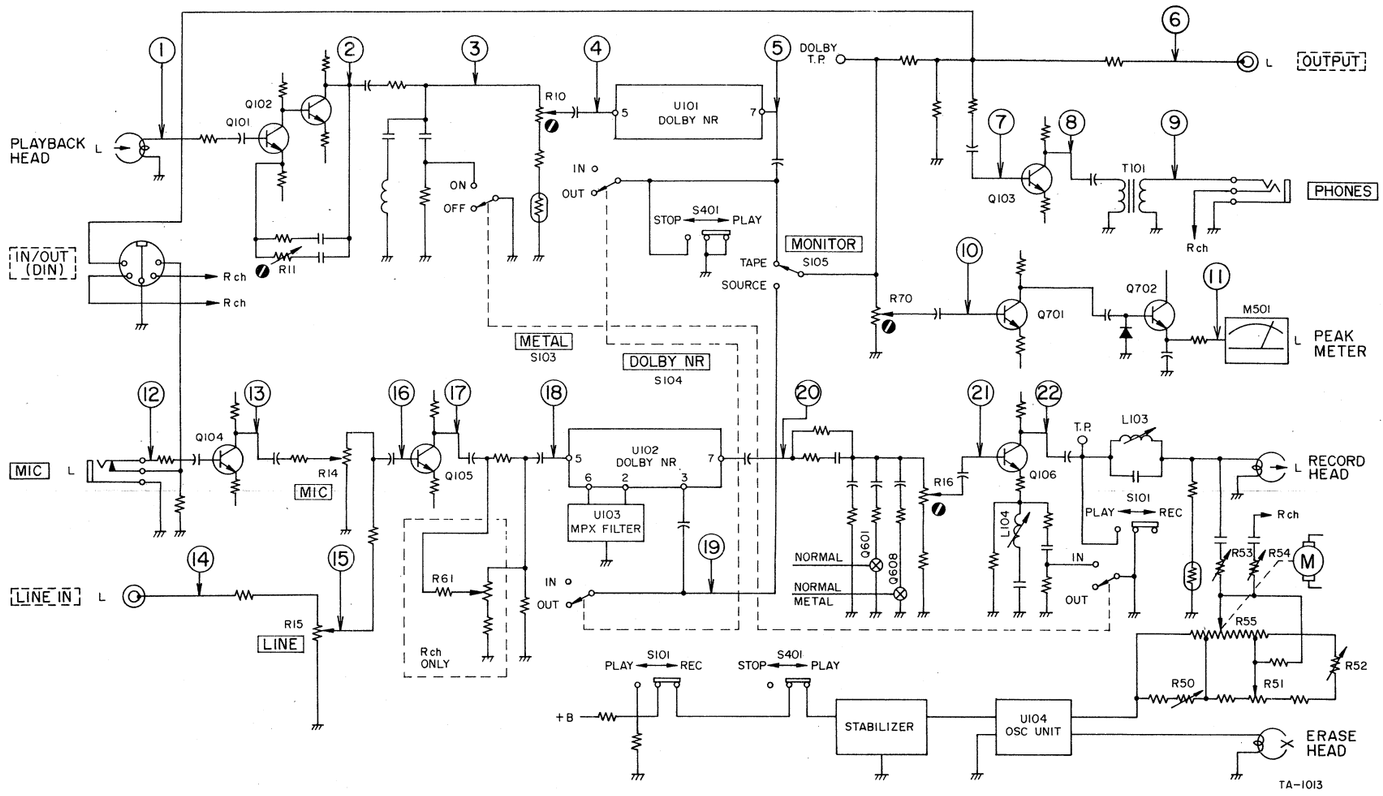
(Continued from page 21)

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 41	*55533020	Holder, Gear Block	
4 - 42	*55533570	Chassis, Right	
4 - 43	*55557140	Bracket, IN/OUTPUT PCB	
4 - 44	55031980	Gear Block Assy	
4 - 45	*55558410	Bracket, Gear Block	
4 - 46	*51502410	Var. Res., 360° Control	
4 - 47	*55348010	Coupling, Universal	
4 - 48	*55047930	Cam Assy	
4 - 49	*55558440	Holder, Cam Switch	
4 - 50	*51300090	Switch, Micro; Cam	
4 - 51	*55544470	Plate, Switch	
4 - 52	*51689170	PCB Assy, VR	
4 - 53	*51689630	PCB Assy, REC AND PLAY AMPL	
4 - 54	*55800060	Washer, Fiber	
4 - 55	*55800070	Washer	
4 - 56	*55550591	Bracket, REC AND PLAY AMPL PCB	
4 - 57	*55346490	Rod, Push Switch; C	
4 - 58	*50438480	Connector Socket, 6P	
4 - 59	*55555900	Plate, GND; A	Part of 4 - 53
4 - 60	*51274580	Wire, Ribbon	Part of 4 - 53
4 - 61	*51689200	PCB Assy, CONTROL	
4 - 62	*55557110	Holder, PCB	
4 - 63	*51689140	PCB Assy, IN/OUTPUT	
	51260301	Terminal Assy	Part of 4 - 63
4 - 64	*55524001	Panel, Rear	
4 - 65	*55550630	Washer, GND	
4 - 66	55341180	Push Rivet	
4 - 67	*55300470	Strain Relief, AC Power Cord	U.S.A., CANADA, GENERAL EXPORT
	*55342690	Strain Relief, AC Power Cord	AUSTRALIA
4 - 68	51280340	Cord, AC Power	GENERAL EXPORT
	51280750	Cord, AC Power	U.S.A., CANADA
	*51280180	Cord, AC Power	EUROPE
	*51280360	Cord, AC Power	U.K.
	*51280310	Cord, AC Power	AUSTRALIA

BLOCK DIAGRAM –AUTO BIAS–

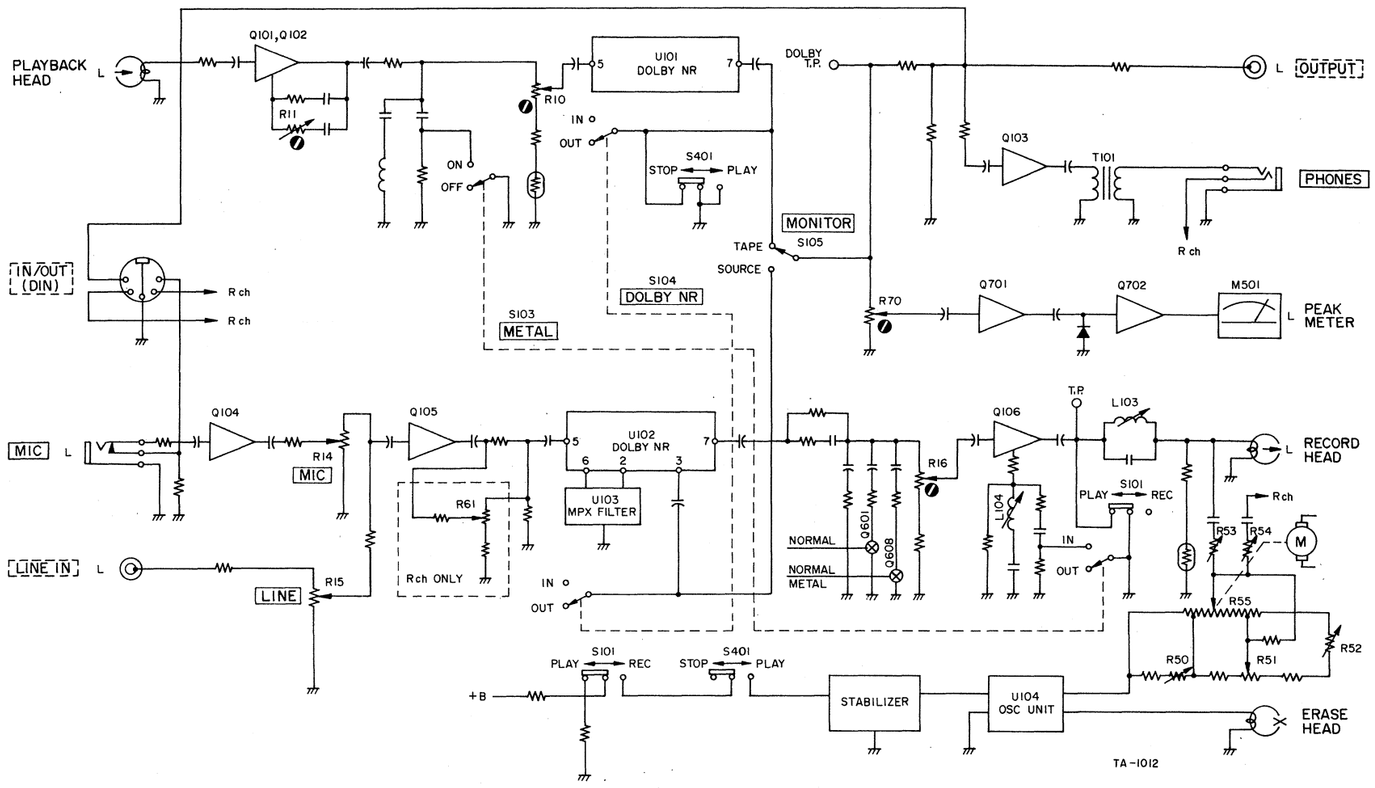


BLOCK DIAGRAM –AMPLIFIER–

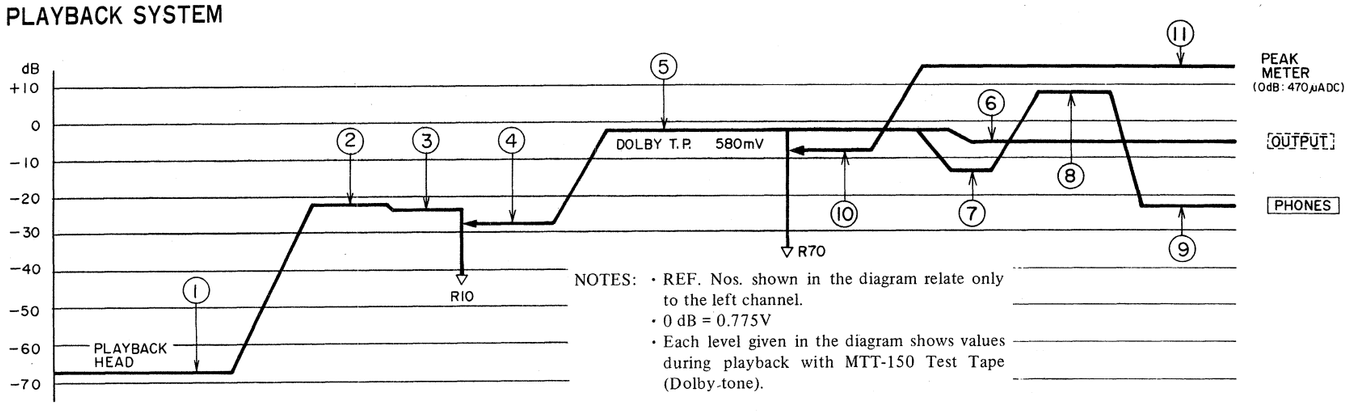


NOTE: REF. Nos. shown in the diagram relate only to the left channel.

LEVEL DIAGRAM

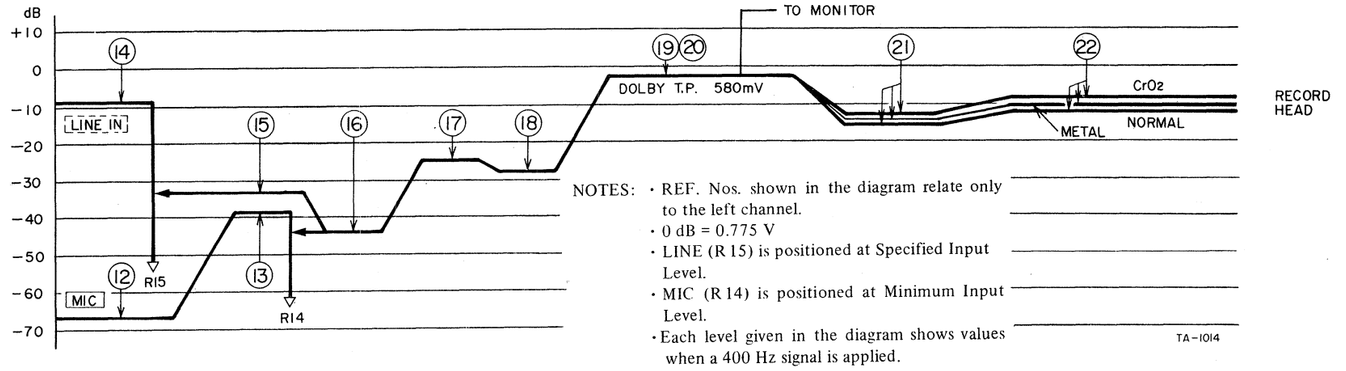


PLAYBACK SYSTEM



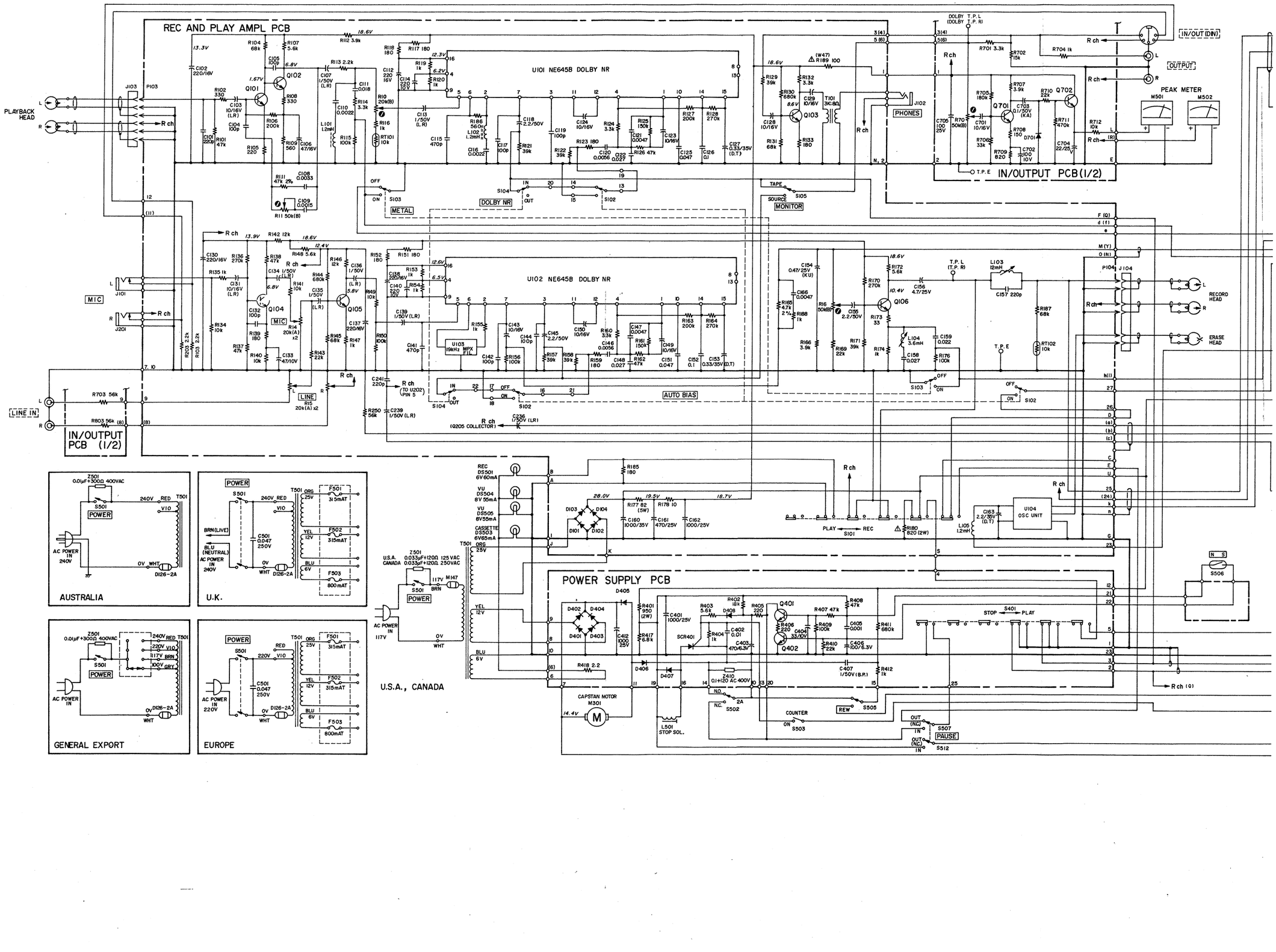
NOTES:
- REF. Nos. shown in the diagram relate only to the left channel.
- 0 dB = 0.775V
- Each level given in the diagram shows values during playback with MTT-150 Test Tape (Dolby-tone).

RECORDING SYSTEM



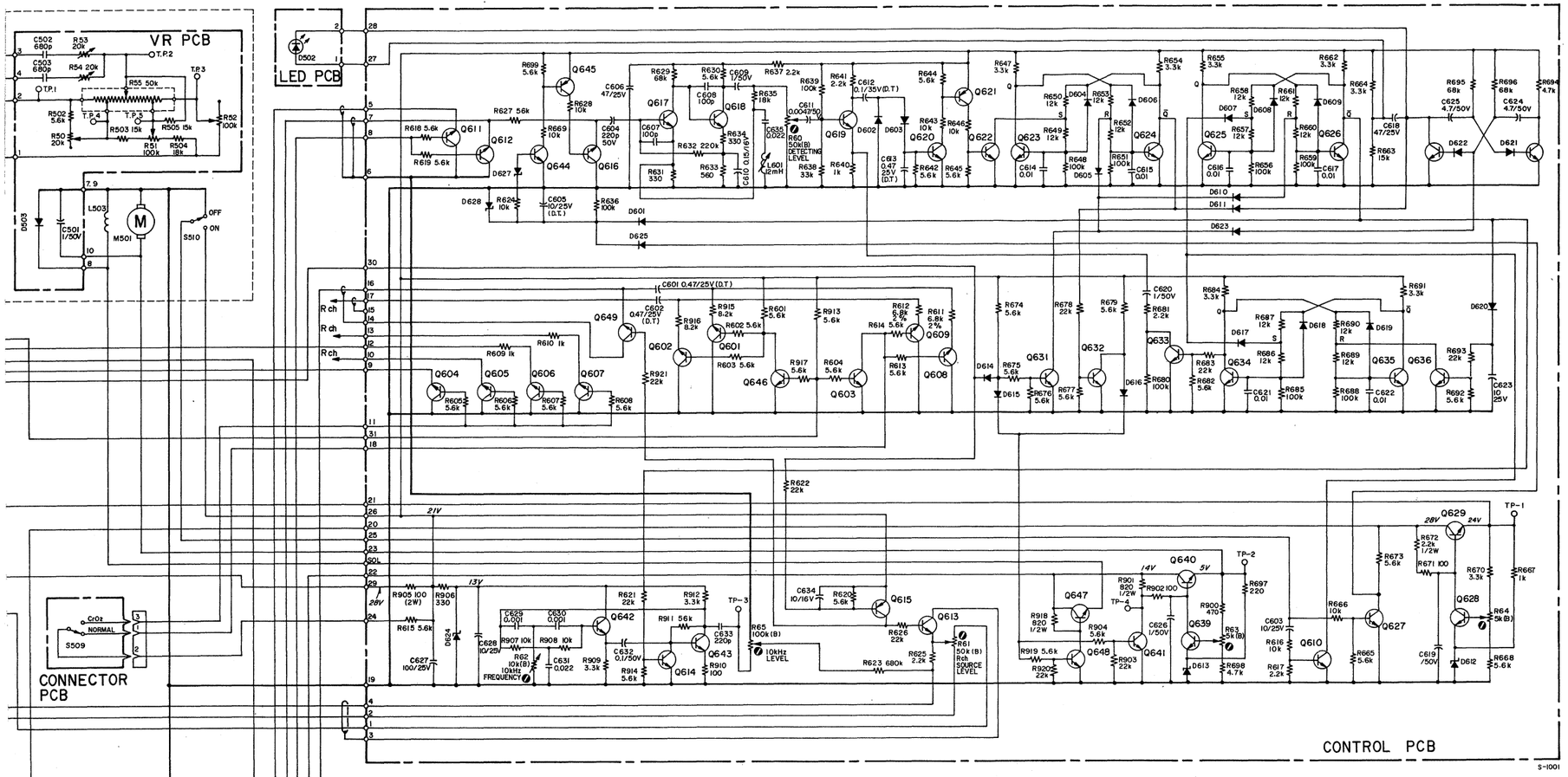
NOTES:
- REF. Nos. shown in the diagram relate only to the left channel.
- 0 dB = 0.775 V
- LINE (R 15) is positioned at Specified Input Level.
- MIC (R 14) is positioned at Minimum Input Level.
- Each level given in the diagram shows values when a 400 Hz signal is applied.

TA-1014


REC AND PLAY AMPL PCB
U101 NE645B DOLBY NR
U102 NE645B DOLBY NR
U103 19kHz MPX
PLAYBACK HEAD
MIC
LINE IN
LINE
R15 20k(A) x2
IN/OUTPUT PCB (1/2)
METAL
DOLBY NR
AUTO BIAS
TAPE SOURCE
MONITOR
PHONES
J102
IN/OUT(DIN)
OUTPUT
PEAK METER
M501
M502
IN/OUTPUT PCB(1/2)
RECORD HEAD
ERASE HEAD
J104
AUSTRALIA
U.K.
GENERAL EXPORT
EUROPE
U.S.A., CANADA
POWER SUPPLY PCB
CAPSTAN MOTOR M301
L501 STOP SOL.
U104 OSC UNIT
PLAY REC
STOP PLAY
REW
COUNTER
PAUSE
S501
S502
S503
S505
S507
S512
S506
S401
S101
S102
S103
S104

A-430

8 9 10 11 12 13 14

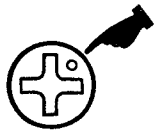


NOTES.

1. ALL RESISTORS ARE 1/4 WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS,M=1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS)
3. SCHEMATIC DIAGRAM SHOWN FOR LEFT CHANNEL EXCEPT FOR SOME OF THE COMPONENTS.
4. DC VOLTAGES WERE MEASURES DURING RECORD PAUSE MODE UNLESS OTHERWISE NOTED.

ASSEMBLING HARDWARE CODING LIST

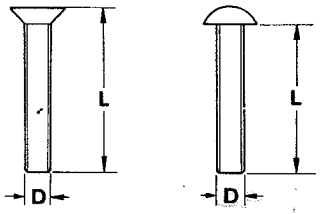
All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M3 x 6

- B — Nomenclature
- M — Metric System
- 3 — Diameter in mm (D) *
- 6 — Length in mm (L)



* Inner dia. for washers and nuts

	Code	Name	Type
MACHINE SCREW	R	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	RW	Round Head Wood Screw	
TAPTITE SCREW	PTT	Pan Head Taptite Screw	
	WTT	Washer Head Taptite Screw	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	Name	Type
TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	E	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	N	Hex Nut	